CD329

OCTOBER 2018

DICKSON

Environmental Monitoring + Compliance Experts

+

TEMPERATURE MAPPING DEFINED

A LOOK AT THE WORDS YOU SHOULD KNOW AND WHAT THEY MEAN

CUSTOMER Q&A

CAN DICKSON VISIT MY FACILITY?

NO BONES ABOUT IT

THE SCARY TASK OF STORING AND SHIPPING CHOCOLATE

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October 2018

LETTER FROM THE EDITOR

Shifting Seasons

Leaves Aren't the Only Thing Changing

In the state of Indiana, there's an annual journey that many families take to Brown County State Park each fall. The park itself is known by Hoosiers as being a beautiful place to take in the visual splendor that the season has to offer. The reds, oranges, and yellows that paint the visual landscape can be breathtaking to be sure.

Along with those changes, though, come changes in exterior temperature. It means transitioning your wardrobe from shorts and flip flops to hoodies and sweaters. The same changes can also impact your facilities, and even the equipment found within. That's why it's important to know how the environment within your company varies as each new season arrives.

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 our October issue.

Jenn Renoe

EDITOR-IN-CHIEF

ABOUT US

Since 1923, Dickson has been changing the way organizations monitor their environments. By incorporating the best and newest innovations, Dickson enables organizations to manage compliance, asset protection, data analysis, and product quality with confidence. Today, Dickson provides validated solutions and services for over 80% of Fortune 100 companies in highly-regulated industries including healthcare, medical device, pharmaceutical, food, aerospace, and more. With the trust of over 80,000 customers worldwide, Dickson helps to protect billions of dollars worth of assets and remains the industry leader.

In This Issue

DICKSON

YOUR SERVICE EXPERTS

MAPPING **CALIBRATION** **VALIDATION** **INSTALLATION**

In most regulated industries, monitoring systems are not the only thing necessary for compliance. Turn to our team of experts for your compliance needs.

SERVICES
BY DICKSON

WE'RE EXPERTS IN MORE THAN MONITORING

Dickson's devices have been monitoring temperature for almost a century. Now you can leverage that experience and our knowledgeable team of experts to help manage your compliance process from start to finish.

Our experts are here for you.

630.543.3747

support@dicksondata.com

MEET OUR DIRECTOR OF SERVICES

Antoine Nguyen
Director of Services

Before coming to Dickson, Antoine spent more than 18 years in validation with companies that answer to FDA audit. With Antoine and his team at the helm, you can feel confident that your job is well cared for.

MAPPING

ARE YOUR P STORED

Mapping the differences and changes in temperature within a three-dimensional space can be a daunting task, but the data is invaluable. Let us help keep your business fully compliant by documenting temperature distribution and provide you with the rationale for permanent monitoring placement to protect your temperature-sensitive products.

VALIDATION

ARE YOUR SYSTE AS INT

Our team of compliance experts will help you meet your validation needs from start to finish. We'll test every aspect, ensure no detail is overlooked, and document the proper working order of your equipment or software system. With their expertise, you'll have documentation in hand that stands up to audits.

RODUCTS
O SAFELY?

WAREHOUSE MAPPING

Temperature and humidity can impact materials in your warehouse. Locating the hot and cold spots now can mean less spoiled product and fewer failed audits later.

COLD STORAGE MAPPING

Every refrigerator and freezer has its own nuances. Is the temperature distribution even? A successful mapping will ensure your storage systems adhere to safety standards.

CHAMBER MAPPING

Are your chambers' conditions equal on the top and bottom shelves? Understanding the exact environmental conditions of any chamber is critical to ensure repetition and accuracy.

MS OPERATING
ENDED?

IQ

INSTALLATION QUALIFICATION

Let us verify your equipment has been properly installed and that it is ready to work per your specifications. Once that's in place we will work to establish a baseline for the equipment.

OQ

OPERATIONAL QUALIFICATION

We will confirm your equipment is operating appropriately within its outlined specifications. You will also receive verification that your system meets claims from all parameters.

PQ

PERFORMANCE QUALIFICATION

Dickson takes the time to authenticate your equipment is performing correctly and within specification. You can count on Dickson to verify that it is meeting your intended use.

CALIBRATION

WHICH CALIBRATION DO YOUR AUDITORS REQUIRE?

Using Dickson's ISO 17025 A2LA accredited calibration laboratory is the best way to ensure that your Dickson instrument is calibrated properly. With over 90 years of experience, we have SOP's in place to ensure that each unit is calibrated to a precise and accurate specification.

1-POINT **NIST**

- One specific temperature and/or humidity point (middle) calibration
- Good if your temperature or humidity varies little
- Specify the temperature and/or humidity point to best reflect your application

OR

3-POINT **NIST**

- Three-point (high, middle, and low) temperature and/or humidity calibration
- Provides a larger proof of accuracy
- Specify the temperature and/or humidity points to best reflect your application

INSTALLATION

HOW DO YOU IMPLEMENT NEW SYSTEMS?

Let us give you your time back by installing your loggers wherever, whenever. Once everything is up and running, we will test the devices to ensure they are working as intended.

SELF

Install DicksonOne units on your own.

By following along with our installation guide, it should take just a few minutes to set up each device in your system.

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 alarms, locations, permissions, and more.

TURNKEY

Sit back and we'll take care of everything.

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

Whether you're a seasoned professional or working with your first environmental monitoring system, Our team is ready to assist you every step of the way.

Q | A

CAN DICKSON VISIT MY FACILITY TO HELP DETERMINE MY MONITORING NEEDS?

BY GEORGE SORENSEN

Whether our customers are working in high compliance industries or just aren't as familiar with how they should be monitoring their environments we often get asked if we can come on site to help review how they should be monitoring their facility. The short answer is yes, we are more than happy to come on site and see firsthand what your goals and challenges are. However, before we arrive at your facility, there are a few steps we would like to complete first.

Before we walk into your facility, we would first like to set up an assessment call or two, which would include a monitoring needs analysis and a compliance requirements review, to learn as much about your facility and goals when it comes to environmental monitoring as we can. By speaking with you and other key players on your team, we develop a great base of understanding for how your team operates and the challenges you face with your environmental monitoring needs. As we develop that greater understanding, we can pull from past experience and share similar use cases from within your industry. After speaking with you and your team to establish your wants, needs, goals, and challenges, then we are ready to come see firsthand how you operate.

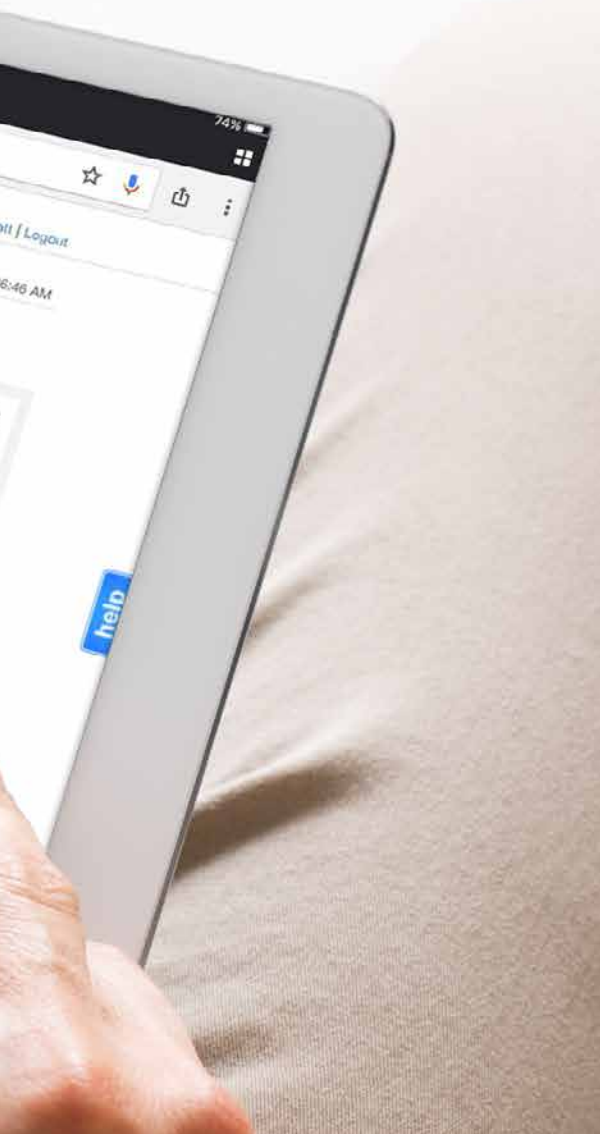
By walking your facility and doing a site assessment of all the areas that we have previously discussed, we both can get a much clearer picture of how environmental monitoring will fit within your facility. We may even find areas that weren't initially discussed that should be brought into the scope of your monitoring, or find that certain areas don't need to have their own monitoring points after all. This ensures that we can walk away with a much clearer vision of the size and scope of the project. Adjustments can be made to your wants and needs and realignment of goals can be set if necessary.

On site visits are a great tool for not only you, but for us as well. By walking a facility with you, the end-user, and learning about your frustrations and how you envision your environmental monitoring, we can help you develop the best suited system for your operations.

DicksonOne isn't just a monitoring system.

It's a spend-more-time-with-patients, avoid-audit-findings, and cover-your-assets system.

SIMPLE SCALABLE COMPLIANT



DicksonOne is a cloud-based environmental monitoring system featuring an easy-to-use interface for monitoring your critical variables, allowing you to remain compliant without taking up too much of your time. Plus with multiple alarm notification methods, you can ensure the right people are up-to-date on any excursion with time to act before something spoils.

Read on for more information on DicksonOne's 21 CFR Part 11 compliance, the system's intuitive interface, alarming, and more.

DicksonOne

SIMPLE

DicksonOne touchscreens and data loggers collect temperature, humidity, and differential pressure data and automatically deliver it to the DicksonOne cloud application. No more downloading data or changing charts—DicksonOne does all the work for you.

- Easily navigate the system with DicksonOne's intuitive interface
- Use the dashboard page to view all loggers by location at-a-glance
- View trend graph and data summary with just one click
- Set up recurring reports, delivered how and when you want them
- Access your data 24/7 from any internet-connected device

SCALABLE

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.

- No limit on adding unique user names and passwords
- Apply alarm conditions and notifications to multiple devices and channels at once with alarm templates
- Conveniently create, edit, and manage alarm notifications and recipients for all locations in one place with escalation policies

COMPLIANT

In highly compliant environments that are heavily regulated, there are a lot of boxes you need to check to ensure you're ready for an audit. Here are a few of the boxes our system checks:

- 21 CFR Part 11 compliance
- Secure transmission of data and unlimited data storage
- NIST and A2LA (ISO 17025) accredited Calibration Lab
- VFC-approved system for monitoring vaccine refrigerators

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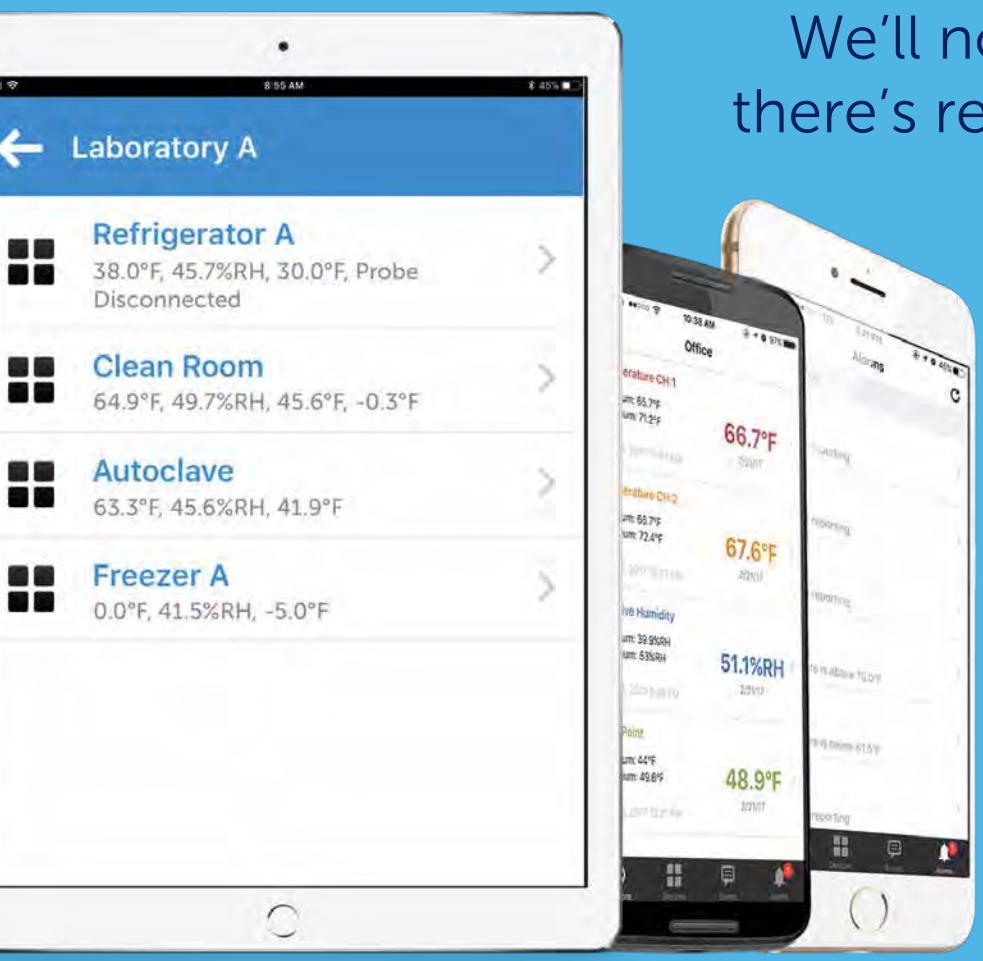
ACE OF MIND
AL-TIME NOTIFICATIONS



We'll notify you when there's reason to worry.

1

Choose **when** you'd like to be notified:

Set up alarms for high/low variable readings and receive notifications when devices aren't reporting or a probe has been disconnected.

2

Choose **how** you'd like to be notified:

Be notified via text, phone, email, or audible alarm whenever an alarm condition is met.

PLY
DENCE

Knowing all of your company's nuances through cloud-based monitoring and data collection can give you the confidence you need for total compliance. **With DicksonOne's custom reporting feature, you'll get just that.**

DIcksonOne TWP Touchscreen with POE

Dimensions: 8.5 x 1.75 x 7" | Display Dimensions: 8" Diagonal
Display Type: LCD Touchscreen

The Touchscreen

A capacitive 8" touchscreen offers our best user experience ever, and now features customizable views, alarms, and more. Plus, with DicksonOne compatibility, you get your data at your fingertips, and wherever else you might need it.

- Intuitive user-interface makes it easy to view and manage your data
- Automatically calculates and updates summary data for the selected time range
- Includes passcode protection for unit security

Replaceable Sensors™

With Dickson's patent pending Replaceable Sensors, you can recalibrate any DicksonOne device on the fly without having to send in your device. 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 your television remote.

Recalibrate in less than a minute!

Just unplug the current sensor and plug in the newly calibrated sensor.

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

Differential Pressure Sensor

Ambient Temperature or Temperature & Humidity Sensor

Designed with your needs in mind.

	DWE	TWE	TWP
DICKSONONE ENABLED	✓	✓	✓
WIFI/ETHERNET	✓	✓	✓
REPLACEABLE SENSOR PORTS	1	2	2
RELAYS		Optional	Optional
PROXIES		✓	✓
VIEW HISTORICAL DATA AT THE POINT OF MONITORING		✓	✓
POWER OVER ETHERNET	w/ Adapter		✓
SCREEN SPECS	Segmented Display	8" LCD Touchscreen	8" LCD Touchscreen
BACKUP BATTERY	1 Week	70 Hours	70 Hours
BACKUP STORAGE	400,000 Points	1,000,000 Points	1,000,000 Points

Yearly DicksonOne Subscription Plans

BASIC
$0

Unlimited devices.
Data stored for 30 days.
One-hour sample interval.

STARTER
$300

1-10 devices.
Data stored for life of account.
Multiple sample rates.
Email, phone, & text alerts.
API access.

REGULAR
$725

11-25 devices.
Data stored for life of account.
Multiple sample rates.
Email, phone, & text alerts.
API access.

PLUS
$1,400

26-50 devices.
Data stored for life of account.
Multiple sample rates.
Email, phone, & text alerts.
API access.

ENTERPRISE
Call TODAY for a quote!

51+ devices.
Data stored for life of account.
Multiple sample rates.
Email, phone, & text alerts.
API access.

INTERESTED IN A MONTHLY PLAN?

Enjoy the flexibility of a monthly plan with prorated devices and the ability to add devices when you're ready.

$3 PER DEVICE
(Per device, per month. Credit card required)

TEMPERATURE MAPPING DEFINED

A Look at the Words You Should Know and What They Mean

BY RACHEL KELLETT

Temperature mapping data is invaluable when it comes to storing your temperature sensitive products. Through the process of mapping, you are able to collect continuous monitoring at a number of set points throughout a facility. By analyzing this data, you can locate the hot or cold spots that exist throughout any given structure. However, at times, the mapping data can be a little overwhelming, especially when accompanied by a validation. What does that mean? Where did that come from? What do I need to know? What is that? Thanks to The World Health Organization's Model Guidance for the Storage and Transport of Time and Temperature–Sensitive Pharmaceutical Products, we have listed out the key terms and abbreviations to help make digesting your mapping report and validation easier.

Common Abbreviations

3PL Third Party Logistics
CAPA Corrective and Preventive Action (Procedures)
EDLM Electronic Data Logging Monitor
GMP Good Manufacturing Practices
IQ Installation Qualification
NIST National Institute of Standards and Technology
OQ Operation Qualification
PQ Performance Qualification
SLA Service Level Agreement
SOP Standard Operating Procedure

Key Terms

Component: Any major piece, part, or assembly of the main equipment or sub-equipment that does not have its own power supply and could not operate as a standalone unit (valves, switches, etc.)

Controller: A device that interprets a mechanical, digital, or analogue signal, generated by a sensor, to control an equipment or component.

Deviation: For IQ: Any discrepancy between the installation specifications and the actual (as found) installation. For OQ: Any discrepancy between the protocol and the actual performed test, test function methodology, testing equipment, testing material, etc.

Electronic Data Logging Monitor: A small portable device that measures and stores temperature at predetermined time intervals by means of an electronic sensor.

IQ (Installation Qualification): The process of obtaining and documenting evidence that the premises, equipment, and supporting systems have been provided and installed in compliance with their design specifications.

Instrument: A device that interprets a mechanical, digital, or analog signal generated by a sensor and converts it into engineering units (°C, % RH, mA, etc.) through scaling.

Key Operating Parameters: Parameters that must be maintained in order to process or produce products with consistent quality attributes and those that may have an impact on the proper operation of the equipment.

Mapping: Documented measurement of the temperature and/or relative humidity distribution within a storage area, including identification of hot and cold spots.

OQ (Operation Qualification): The process of obtaining and documenting evidence, under controlled conditions, that the premises, equipment, and supporting systems operate in accordance with their design specifications.

PQ (Performance Qualification): The process of obtaining and documenting evidence that the premises, equipment and supporting systems, as connected together, will consistently perform in accordance with the approved process method and specifications.

Refrigeration Equipment: The term 'refrigeration' or 'refrigeration equipment' means any equipment whose purpose is to lower air and product temperatures and/or to control relative humidity.

Sensor: A mechanical device (pressure switch, bimetal temperature switch, etc.), or a digital or analogue transducer (limit switch, pressure sensor, temperature sensor, etc.) that generates a mechanical or electrical signal to an instrument or a controller in order to be interpreted.

Service Level Agreement: A service level agreement or contract is a negotiated agreement between the customer and service provider that defines the common understanding about materials or service quality specifications, responsibilities, guarantees, and communication mechanisms. It can either be legally binding or an information agreement.

Standard Operating Procedure: A set of instructions having the force of a directive, covering those features of operations that lend themselves to a definite or standardized procedure without loss of effectiveness. Standard operating policies and procedures can be effective catalysts to drive performance improvement and improve organizational results.

Temperature Controlled: Includes any environment in which the temperature is actively or passively controlled at a level different from that of the surrounding environment within precise predefined limits

Validation: Documented testing performed under highly controlled conditions, demonstrating that processes, methods, and systems consistently produce results meeting predetermined acceptance criteria.

We understand that it can be overwhelming to look at mapping data. Luckily, we're here to digest it, analyze it and help you understand your report. D

FAST. EASY. COST-EFFECTIVE.

REPLACEABLE SENSORS™

Calibrate in less than a minute!

Meet the fastest way to calibrate.

Gone are the days of downtime. Now, with Dickson's patent pending Replaceable Sensors, you can continuously monitor without interruption when it's time to recalibrate. No need to power down or unplug your device—simply unplug the existing sensor and plug in the new sensor for instant calibration. **For specifications, turn to page 21.**

REPLACEABLE™ SENSORS BY DICKSON

DICKSON

PRODUCT INNOVATORS

DICKSONONE DEVICES

DATA LOGGERS

REPLACEABLE SENSORS™

CHART RECORDERS

Since 1923, we've strived to incorporate the best and newest technologies into our products to bring you monitoring solutions of the highest caliber. We maintain the world's widest selection of top quality instruments customized to fit your monitoring needs. From chart recorders to the new DicksonOne, we are constantly creating, which has made us an industry leader in environmental monitoring.

PRODUCTS BY DICKSON

DICKSONONE

DICKSONONE TOUCHSCREEN

A capacitive 8" touchscreen offers our best user experience ever and now features customizable views, alarms, and more. Plus, with the option for DicksonOne compatibility, you get your data at your fingertips and wherever else you might need it.

TWE WiFi/Ethernet Connection — STARTING AT **$524**

TWP Power Over Ethernet — STARTING AT **$599**

Ambient Operating Temperature Conditions: 32°F to 140°F (-0°C to 60°C)
Battery Backup: 70 Hours
Data Capacity: Approx 1,000,000 sample points (backup)
Dimensions: 8.5 x 1.75 x 7"
Display Dimensions: 8" Diagonal
Display Type: LCD Touchscreen
Sensor Type: Replaceable Sensor(s) *(sold separately)*
Download Type: WiFi/Ethernet
Alarm Type(s): Text, Email, Phone Call, Audio/Visual

TWE, TWP

DICKSONONE DATA LOGGER

The DicksonOne data logger collects temperature, humidity, and differential pressure data and automatically delivers it to the DicksonOne cloud application. From there, you can access your secure data from any internet-connected device, anywhere in the world. No more downloading data or changing charts—DicksonOne does all the work for you.

DWE WiFi/Ethernet Connection — STARTING AT **$350**

Ambient Operating Temperature Conditions: 32°F to 158°F (-0°C to 70°C)
Data Capacity: Approx 400,000 sample points (backup)
Dimensions: 1.7 x 4.25 x 4.25"
Display Type: Digital
Sensor Type: Replaceable Sensor(s) *(sold separately)*
Download Type: WiFi/Ethernet
Alarm Type(s): Text, Email, Phone Call, Audio/Visual

DWE

DicksonOne

21 CFR Part 11 Compliant. Scalable. Simple.

DicksonOne is a cloud-based environmental monitoring system featuring an easy-to-use interface for monitoring your critical variables, allowing you to remain compliant without taking up too much of your time. Plus, with multiple alarm notification methods, you can ensure the right people are up-to-date on any excursion with time to act before something spoils. For more information, turn to page 8 or visit DicksonData.com/DicksonOne.

DATA LOGGERS

TOUCHSCREEN *Compatible with DicksonWare 2.0*

TSB Touchscreen - USB — STARTING AT $424

Ambient Operating Temperature Conditions: 14°F to 140°F (-10°C to 60°C)
Battery Backup: 70 Hours
Data Capacity: Approx 1,000,000 sample points (backup)
Dimensions: 8.5 x 1.75 x 7"
Display Dimensions: 8" Diagonal
Display Type: LCD Touchscreen
Sensor Type: Replaceable Sensor(s) *(sold separately)*
Alarm Type(s): Audio/Visual

TSB

DISPLAY *Compatible with DicksonWare 2.0*

SP425 Display Temperature Data Logger — $172

Range: -4°F to 158°F (-20°C to 70°C)
Accuracy: ±1.2°F from -4°F to 158°F (±0.7°C from -20°C to 70°C)

TP425 Display Temperature & Humidity Logger — $269

Range: -4°F to 158°F (-20°C to 70°C)
Accuracy: ±0.8°F from 20°F to 120°F (±0.44°C from -6°C to 48°C)
Humidity: ±2% RH from 0 to 60%; ±3% RH from 60 to 95%

SP425

TP425

DSB Display Temperature & Humidity Logger — STARTING AT $309

Ambient Operating Temperature Conditions: 32°F to 158°F (-0°C to 70°C)
Battery Type: 2 AA Batteries (AC Power Adapter sold separately)
Battery Life: Approx 2 years
Data Capacity: Approx 400,000 readings
Sensor Type: Replaceable Sensor(s) *(sold separately)*
Alarm Type(s): Audio/Visual

DSB

COMPACT *Compatible with DicksonWare 2.0*

SP125 Temperature Data Logger — $129

Range: -10°F to 176°F (-23°C to 80°C)
Accuracy: ±-1.2°F from -10°F to 176°F (±-0.7°C from -23°C to 80°C)

TP125 Temperature & Humidity Logger — $215

Range: -10°F to 176°F (-23°C to 80°C)
Accuracy: ±0.8°F from 20°F to 120°F (±0.44°C from -7°C to 49°C)
Humidity: ±2% RH from 0 to 60%; ±3% RH from 60 to 95%

SP125

SK550 Compact Temperature Data Logger — $699

Coin-Sized Temperature Logger **Pack of 12**
Range: -4°F to 158°F (-20°C to 70°C)
Accuracy: ±1.8°F from -4°F to 158°F (±1°C from -20°C to 70°C)

TK550 Compact Temperature & Humidity Logger — $999

Coin-Sized Temperature & Humidity Logger **Pack of 12**
Range: -4°F to 158°F (-20°C to 70°C)
Accuracy: ±1.8°F from -4°F to 158°F (±1°C from -20°C to 70°C)
Humidity: ±2% RH from 0 to 60%; ±3% RH from 60 to 95%

TK550

DATA LOGGERS

INDICATORS *No software required*

MM120 Vaccine Alarm Thermometer — **$53**

1-Probe Vaccine Alarm Thermometer, Battery Powered
Temperature Range: -50°F to 122°F (-50°C to 50°C)
Accuracy: ±1.8°F from 0° to 122°F (±1°C from -18°C to 50°C)

MM125 Vaccine Alarm Thermometer — **$64**

2-Probe Vaccine Alarm Thermometer, Battery Powered
Temperature Range: -58°F to 122°F (-50 to 50°C)
Accuracy: ±1.8°F from 0° to 120°F (±1°C from -18°C to 49°C)

D182 Infrared Thermometer — **$60**

Non-Contact Infrared Thermometer, Lightweight, Easy-Grip, Battery Powered
Temperature Range: -58°F to 986°F (-50°C to 530°C)
Accuracy: ±2% of Reading or 2°C, Whichever is Greater

D186 Infrared Thermometer — **$149**

Non-Contact Infrared Thermometer
Lightweight, Easy-Grip. Battery Powered.
Temperature Range: -67°F to 536°F (-55 to 280°C)
Accuracy: ±1°F from 32°F to 150°F (±0.6C from 0°C to 66°C)

TC700 Touchscreen Handheld Indicator — **$299**

Instant Temperature Data, No-Slip Silicone Cover, Battery Powered
Temperature Range: -200°F to 1999°F (-128°C to 1093°C)
Accuracy: ±1.8°F from -22°F to 122°F (±1C from -30°C to 50°C)

TH700 Touchscreen Handheld Indicator — **$299**

Instant Temperature/Humidity Data, No-Slip Silicone Cover, Battery Powered
Humidity Range: 0 to 95% RH (non-condensing)
Temperature Range: -40°F to 185°F, (-40°C to 85°C)
Accuracy: ±0.8°F from 20°F to 122°F (±0.45°C from -6°C to 50°C)

HIGH TEMP *Compatible with DicksonWare 2.0*

HT300 Waterproof, High Temperature Data Logger — **$349**

HACCP and FDA Compliant, USB Download, IP68 Rating
Temperature Range: -40°F to 257°F, -40°C to 125°C
Accuracy: ±1.8°F from -40°F to 257°F (±1°C from -40°C to 125°C)

HT350 High Temperature Process Logger — **$349**

HACCP Approved, K-Thermocouple Probe, USB Download
Temperature Range: -40°F to 257°F (-40 to 125°C)
Accuracy: ±1.8°F from -22°F to 122°F (±1C from -30°C to 50°C)


MM120


MM125


D182


D186


TC700


TH700


HT300


HT350

DICKSONWARE

Why go digital? That's easy.

DicksonWare allows you to store and share data easily with others in your organization by displaying downloaded data. For more information, visit DicksonData.com/Dicksonware.

PATENT PENDING

REPLACEABLE SENSORS™

REPLACEABLE SENSORS *(PATENT PENDING)*

Now, you have the option to calibrate the sensor as opposed to the unit. 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.

RKTC/RKTC2 Single/Dual K-Thermocouple Temperature Sensor — **$110**

Temperature Range: -300°F to 2000°F (-184°C to 1093°C)
Accuracy: ±1.8°F from -22°F to 122°F (±1°C from -30°C to 50°C)

RTHM/RTHM2 Single/Dual Glycol Thermistor Sensor — **$110**

Temperature Range: -58°F to 158°F (-50°C to 70°C)
Accuracy: ±0.9°F from -58°F to 68°F (±0.5°C from -58°C to 20°C)

RTRH Temperature and Humidity Sensor — **$110**

Temperature Range: -40°F to 185°F (-40°C to 85°C)
Temperature Accuracy: ±0.8°F from 20°F to 120°F (±0.44°C from -6°C to 48°C)
Humidity Accuracy: ±-2% RH from 5.0 to 95% RH

RRTD Platinum Temperature Sensor — **$225**

Cable Length: 6ft (182cm)
Temperature Range: -148°F to 350°F (-100°C to 176°C)
Accuracy: ±0.5°F from -148°F to 350°F (±0.3°C from -100°C to 176°C)


RKTC


RKTC2


RTHM


RTHM2


RTRH


RRTD

DIFFERENTIAL PRESSURE

We've expanded our catalog to include differential pressure monitoring with a new sensor for DicksonOne. Get data delivered to DicksonOne with programmable alerts via text, call, or email to let you know when your pressure is out of control.

RS080 Differential Pressure Sensor (2") — **$149**

Measurement Range: ± 2 inches H_2O
Accuracy: ±0.06 inches H_2O

RS081 Differential Pressure Sensor (0.5") — **$149**

Measurement Range: ± 0.5 inches H_2O
Accuracy: ±0.015 inches H_2O

RS080, RS081

Note: Replaceable sensors for DSB and chart recorders have different part numbers

ZERO DOWN TIME

Take the old sensor off. Put the new sensor on. It's that simple.

COMPLIANT

Sensors come with your choice of NIST or A2LA calibration certificates.

COST-EFFECTIVE

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

CHART RECORDERS

8" CHART RECORDERS

Temperature

KT8P0 — $471
8" (203mm) Temperature Chart Recorder with Replaceable Sensor and Battery Operation; Range Based on Chart

KT8P2 — $528
8" (203mm) Temperature Chart Recorder with Replaceable Sensor, AC Power (Battery Back-Up), and Display; Range Based on Chart

KT8P3 — $642
8" (203mm) Temperature Chart Recorder with Replaceable Sensor, AC Power (Battery Back-Up), Display, and Alarm; Range Based on Chart

KT856 — $820
8" (203mm) Temperature Chart Recorder with Replaceable Sensor, AC Power (Battery Back-Up), Display, Alarm, and Relays; Range Based on Chart

KT8P2

Temperature & Humidity

TH8P0 — $550
8" (203mm) High-Resolution Temperature & Humidity Chart Recorder with Battery Operation and Replaceable Sensor; 32°F to 122°F (0°C to 50°C)

TH8P2 — $642
8" (203mm) High-Resolution Temperature & Humidity Chart Recorder with Display and Replaceable Sensor; Range Based on Chart

TH8P3 — $766
8" (203mm) High-Resolution Temperature & Humidity Chart Recorder with Display, Alarm, and Replaceable Sensor; Range Based on Chart

TH8P5 — $820
8" (203mm) High-Resolution Temperature & Humidity Chart Recorder with Display, Alarm, Relays, and Replaceable Sensor; Range Based on Chart

TH8P3

Pressure

PW860 — $706
8" (203mm) Pressure Chart Recorder, 0-100 PSI, 7-Day

PW861 — $706
8" (203mm) Pressure Chart Recorder, 0-100 PSI, 24-Hr

PW864 — $706
8" (203mm) Pressure Chart Recorder, 0-200 PSI, 7-Day

PW865 — $706
8" (203mm) Pressure Chart Recorder, 0-200 PSI, 24-Hr

PW866 — $706
8" (203mm) Pressure Chart Recorder, 0-300 PSI, 7-Day

PW867 — $706
8" (203mm) Pressure Chart Recorder, 0-300 PSI, 24-Hr

PW875 — $841
8" (203mm) Pressure Chart Recorder, 0-1000 PSI, 24-Hr

PW860

CHARTS & PENS

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!

6" CHART RECORDERS

Temperature

KT6P1 — **$415**

6" (152mm) Temperature Chart Recorder with Replaceable Sensors; Range Based on Chart

KT6P2 — **$528**

6" (152mm) Temperature Chart Recorder with Probe, Display, and Replaceable Sensors; Range Based on Chart

KT6P5 — **$674**

6" (152mm) Temperature Chart Recorder with Probe, Display, Alarms, Relay, and Replaceable Sensors; Range Based on Chart

KT6P2

Temperature & Humidity

TH6P1 — **$550**

6" (152mm) Temperature & Humidity Chart Recorder with Replaceable Sensors, 32°F to 122°F (0°C to 50°C)

TH6P2 — **$642**

6" (152mm) Temperature & Humidity Chart Recorder with Probe, Display and Replaceable Sensors, 32°F to 122°F (0°C to 50°C)

TH6P3 — **$766**

6" (152mm) Temperature & Humidity Chart Recorder with Alarms, Probe, Display and Replaceable Sensors, 0°F to 122°F (0°C to 50°C)

4" CHART RECORDERS

Temperature

SL4100 — **$269**

4" (101mm) Portable, Battery Operated Temperature Chart Recorder with Display, 0°F to 100°F (-18°C to 37°C)

SL4350 — **$269**

4" (101mm) Portable, Battery Operated Temperature Chart Recorder with Display, -22°F to 122°F (-30°C to 50°C)


SL4100

Pressure

PW470 — **$507**

4" (101mm) Pressure Chart Recorder, 0-100 PSI, 7-Day or 24-Hr

PW474 — **$507**

4" (101mm) Pressure Chart Recorder, 0-200 PSI, 7-Day or 24-Hr

PW476 — **$507**

4" (101mm) Pressure Chart Recorder, 0-300 PSI, 7-Day or 24-Hr

PW479 — **$507**

4" (101mm) Pressure Chart Recorder, 0-500 PSI, 24-Hr

PW470

3" CHART RECORDERS

Temperature

SC367 — **$269**

3" (76mm) Temperature Chart Recorder, -14°F to 32°F (-25C to 0°C)

SC377 — **$269**

3" (76mm) Temperature Chart Recorder, 4°F to 50°F (-15°C to 10°C)

SC386 — **$269**

3" (76mm) Temperature Chart Recorder, 22°F to 68°F (-5°C to 20°C)

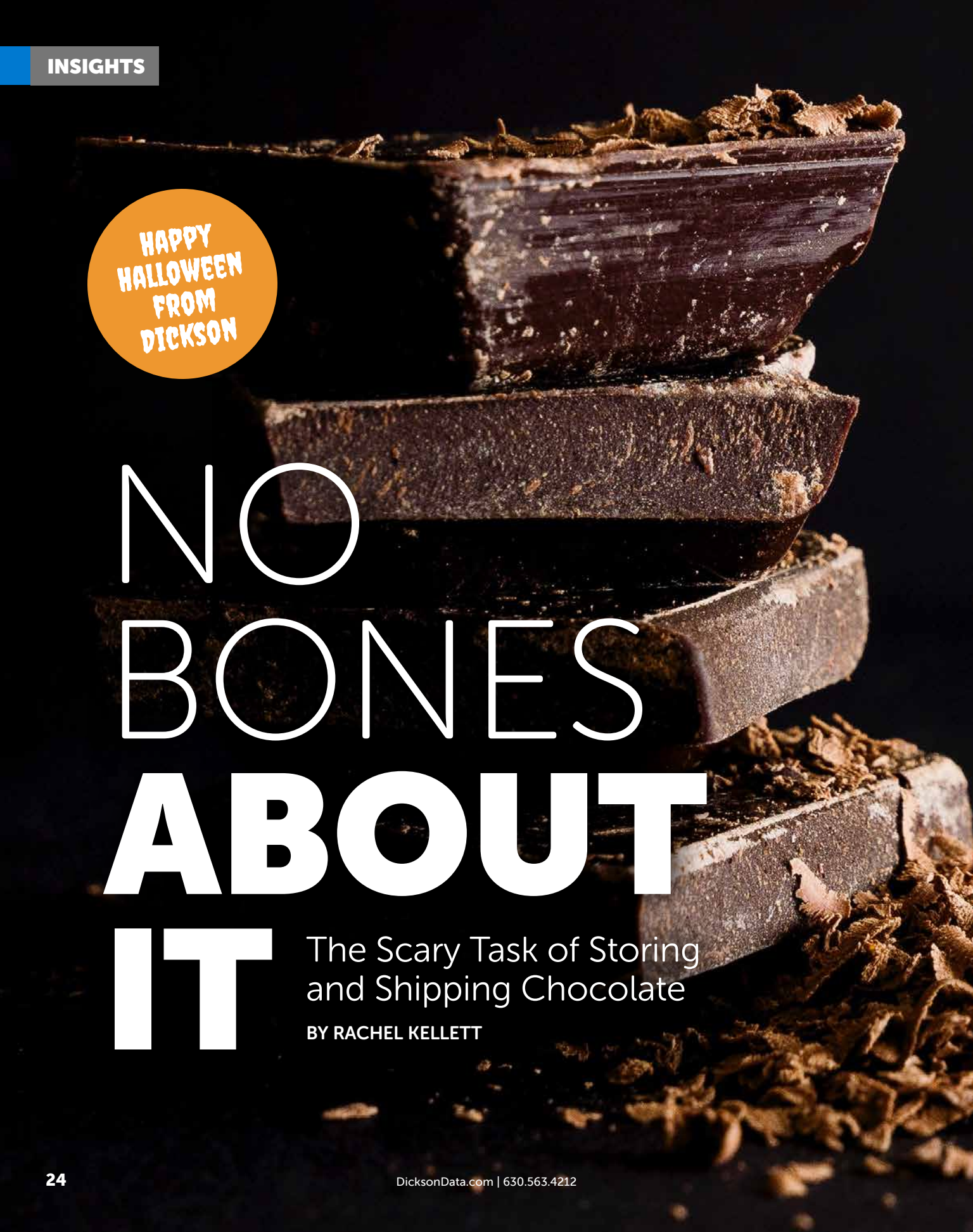
SC387 — **$269**

3" (76mm) Temperature Chart Recorder, 50°F to 96°F (10°C to 35°C)

SC397 — **$269**

3" (76mm) Temperature Chart Recorder, 76°F to 122°F (25°C to 50°C)


SC387



NO BONES ABOUT IT

The Scary Task of Storing and Shipping Chocolate

BY RACHEL KELLETT

Americans love chocolate, but, then again, who doesn't? According to the National Confectioners Association, chocolate is the largest chunk of the $34.5 billion US confectionery industry, with sales accounting for $21.1 billion (or more than 60 percent). Furthermore, according to The Chocolate Store's website, Americans consume 2.8 billion pounds of chocolate each year, or over 11 pounds per person, meaning that people in the U.S. are normally consuming about 115 or so chocolate bars annually. Peak chocolate sales occur around major holidays and with Halloween just around the corner, companies are tasked with answering this question: *How do you successfully store and ship chocolate?*

Chocolate is a fragile consumer good, and it requires particular temperature, humidity, and storage climate conditions to maintain its structure and taste. The optimum storage and transport temperature for chocolate is 50-65°F (10-18°C). If consistent with the proper temperatures, a storage humidity of less than 55% allows for the cocoa solids and cocoa butter to stay in a stable condition for months.

It is also important to store chocolate in a cool, dry place. Chocolate is very absorbent so when it is oxidized, it takes on the scent of what is around it, causing less-than-ideal flavors to develop. Chocolate must also be kept away from the light. Not just sunlight, but also artificial light. They both can aid the oxidation process in developing a poor taste.

In order to ensure that you have the best quality chocolate, maintaining the proper conditions in a temperature and humidity controlled warehouse is a must. When stored properly, chocolate will last much longer. Solid milk chocolate keeps for over a year; solid dark keeps for nearly two years; and white for four months. Filled chocolates, such as truffles, keep for about three to four months.

But what about shipping chocolate? We live in a society that is used to having everything cheap and fast. With the delivery giant Amazon setting shipping standards, it is no longer acceptable to wait more than two days for a delivery. We might have $150 worth of items in our cart, but $5.99 shipping makes us question if we really need a pair of Bluetooth headphones or another Nest accessory. So how do chocolate companies face such high expectations while dealing with one of the most delicate items to ship?

As consumers, we are unaware of just how difficult it is to not only ship chocolate, but also make sure it arrives in acceptable conditions. According to the Transportation Information Services website, the melting point of chocolate is 83°F (28°C). When melting occurs, the fat constituents separate and then solidify upon re-cooling. This causes a fat bloom to form on the surface of the product, usually appearing as a gray to gray-blue coating. Chocolate is also very susceptible to temperature fluctuations, which can cause a sugar bloom to form. When moisture is present, it can dissolve the sugar in the chocolate. Then, when the water evaporates, the sugar remains on the surface in the form of crystals. While neither bloom is dangerous to consume, they can alter the taste and particular appearance of the candy, making it less appealing.

Even with such high expectations from consumers, chocolate companies usually decide to prioritize the integrity of the chocolate packages over convenient prices and fast speed. It is more important that the chocolate arrives intact and without flavor alteration rather than on time but bloomed, broken, or melted. The most successful chocolate companies, such as Hershey's and Nestle, are adopting specific practices and policies, including complete cold chain temperature monitoring, to ensure a smooth shipping process. Many chocolate companies also charge an extra $10.00 in the summer months, or when the package has to reach a particularly warm location. This extra charge covers any gel packs, dry ice, foam sheets, or other insulating material that is used to prevent the heat from reaching the chocolate and creating an unwanted, soupy mess.

This Halloween, as you munch on your favorite chocolate bars, remember all of the time, effort, and care that was put into making sure that your sweet treat arrived in the best possible condition. D

when **every** point matters

A DICKSON CUSTOMER **SUCCESS STORY**

Client: Quality Control in a Laboratory Environment

Goal: The Quality Control Lab wanted to prevent loss of test samples by implementing a temperature monitoring system that could alert them when the temperature went out of range.

Reasons: An incubator was causing problems and would spontaneously plummet out of range. Once the incubator was out of range, the company had two hours to get it within range before a test would need to start over or everything would need to be thrown out.

Capabilities: Now that the new monitoring system is in place, the Quality Control team has had success with the following:

- Monitoring system sends alerts with an email and a phone call when the temperature is out of range instantly
- WiFi transmits the temperature data instead of having to download the data themselves, saving time and resources
- Data loggers no longer have to be removed from the refrigerator/incubator to download the data. They are now always monitoring the equipment
- The new data loggers rely on power instead of batteries. Previously, the battery died with no warning, so no data was recorded
- The old data loggers only recorded in °F, which is not the preferred temperature unit for the lab's use. The new data loggers allow them to choose the temperature unit and can perform real-time data graphing through the DicksonOne portal

Results: Dickson was able to help the client achieve their predefined goal, resulting in continued regulatory compliance. DicksonOne so far has offered the ability to have a reliable system in place and has eliminated the manual process of downloading data, allowing for a more efficient monitoring process.

MILLIONS OF DATA POINTS **AT YOUR FINGERTIPS.**

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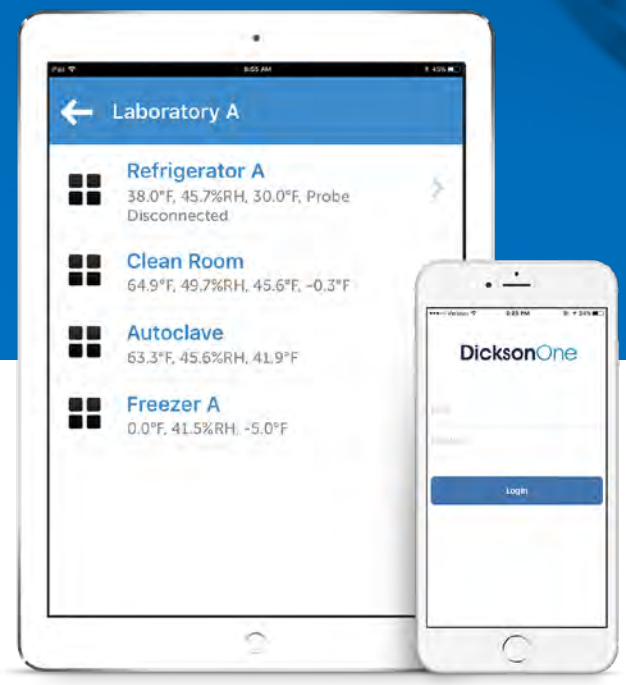
Anywhere. Anytime.



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For more information, see page 16. You may also visit DicksonData.com or call 630.563.4212 to speak with a product expert today!