

DICKSON **insights**

TEMPERATURE MAPPING

Want to know your facility better?

PAGE 16

SAVING THE WORLD

With Smart Design

PAGE 21

2017 TRADESHOWS

PAGE 12



BAD HYGIENE

WHAT SHOULD YOU DO WHEN THE DATA LEAVES YOU FEELING UNDERWATER?

PAGE 21

JEFF RENOE • INSIGHTS EDITOR-IN-CHIEF

FEATURES

02-04

Dickson Resources

Letter from the Editor
The DSB
Time

05-09

Dickson One

About
Overview
The Touchscreen
Pricing

10-13

Dickson Resources

Stop Motion Cold
Tradeshows

14-20

Dickson Solutions

Calibration
Replaceable Sensors
Temperature Mapping
Validation
Products
Dickson Mobile App

21-23

Feature Story

Saving the World with
Smart Design

At Dickson, we know data. It’s what we do. When it comes to monitoring your environments we strive to be the best. That’s why we also take time to understand our environment. How could we not? When every point matters, the world around us must be as important as the world in front of us.

It’s why we were excited to see another device join the ranks of the Internet of Things that can change the way Americans shower. Did you know that our country uses a Lake Tahoe worth of water every ten days, simply because of our shower habits? This new device could help conserve much of that if it ever gains wide scale adoption. While we work to monitor your environment to keep your customers, employees and loved ones safe from lapses in quality, this device is monitoring the environment with the same goal in mind.

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

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



Dickson is coming to a
tradeshow near you!

Read more on pages 12 & 13.

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

DSB

The newest member to 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 15.

Starting at \$199 the DSB will be available for purchase beginning in Q2. Visit DicksonData.com/DSB for more info.



TEMPERATURE SENSORS STARTING AT \$110

- Ambient Temperature & Humidity Sensor
- Single/Dual K-Thermocouple Temperature Sensor
- Platinum RTD Temperature Sensor
- Ambient Temperature Sensor
- Single/Dual Temperature Thermistor Sensor with buffer solution



REPLACEABLE
SENSORS



UPDATED
DICKSONWARE



UP TO 2X THE
BATTERY LIFE



MORE
COMPACT DESIGN

Get more out of DicksonWare.

Available in Q2, DicksonWare will allow 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.



TIME

Is The Most Valuable Thing We Have To Give



VP of Marketing and Sales, Chris Sorensen helps pack one of many meals donated to local food banks, homeless shelters, veterans residences, and soup kitchens through Feed6.

Charitable causes are many but, for many, volunteers are often short.

According to research done by those at the YMCA, Americans' interest in charity is waning. It's why we're always thrilled when our employees take time out of their day to support those in need. That idea starts at the top as evident by the weekend activities of our company's VP of Marketing and Sales, Chris Sorensen. Recently, he and his son, George, spent their Saturday afternoon volunteering for the Feed6 charity in order to help feed both the hungry and the homeless. Within one weekend, the Sorensen's were able to help the organization pack more than 68,000 meals for distribution to local food banks and homeless shelters in the Chicagoland area.

"Each person who volunteers has a specific job in the group," said the younger Sorensen. "Over 360 people showed up to help and the organization had to ship in more supplies last minute allowing the event to exceed its initial goal of 50,000 meals. It was a very fun, upbeat, and lively environment and the two hours we spent there went by quickly."

While the meals will help the cause, they won't solve everything. According

to Feed6, nearly 16,000 children die from hunger-related causes every day. Still, the three million meals the company has packed has helped feed a lot of hungry people.

If you'd like to help but don't have the time to support a cause like this, you could feed 20 hungry children for the cost of a \$5 latte. If you have a couple of hours of time, and a little money to spare, your help can feed as many as 100 children. If you're interested in offering your support to their cause you can find more information on how to volunteer or donate at feed6.org.

If you'd like to learn more about other charities, you can find a list of reputable organizations through the Better Business Bureau's Give.org charity portal. Regardless of what cause you support or how much you have to give, just remember that every second and every cent has the potential to impact someone in need. The Greek fabulist, Aesop, said it best:

"No act of kindness, no matter how small, is ever wasted."

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

WELCOME TO THE CLOUD

DATA AT YOUR FINGERTIPS. ANYTIME. ANYWHERE.

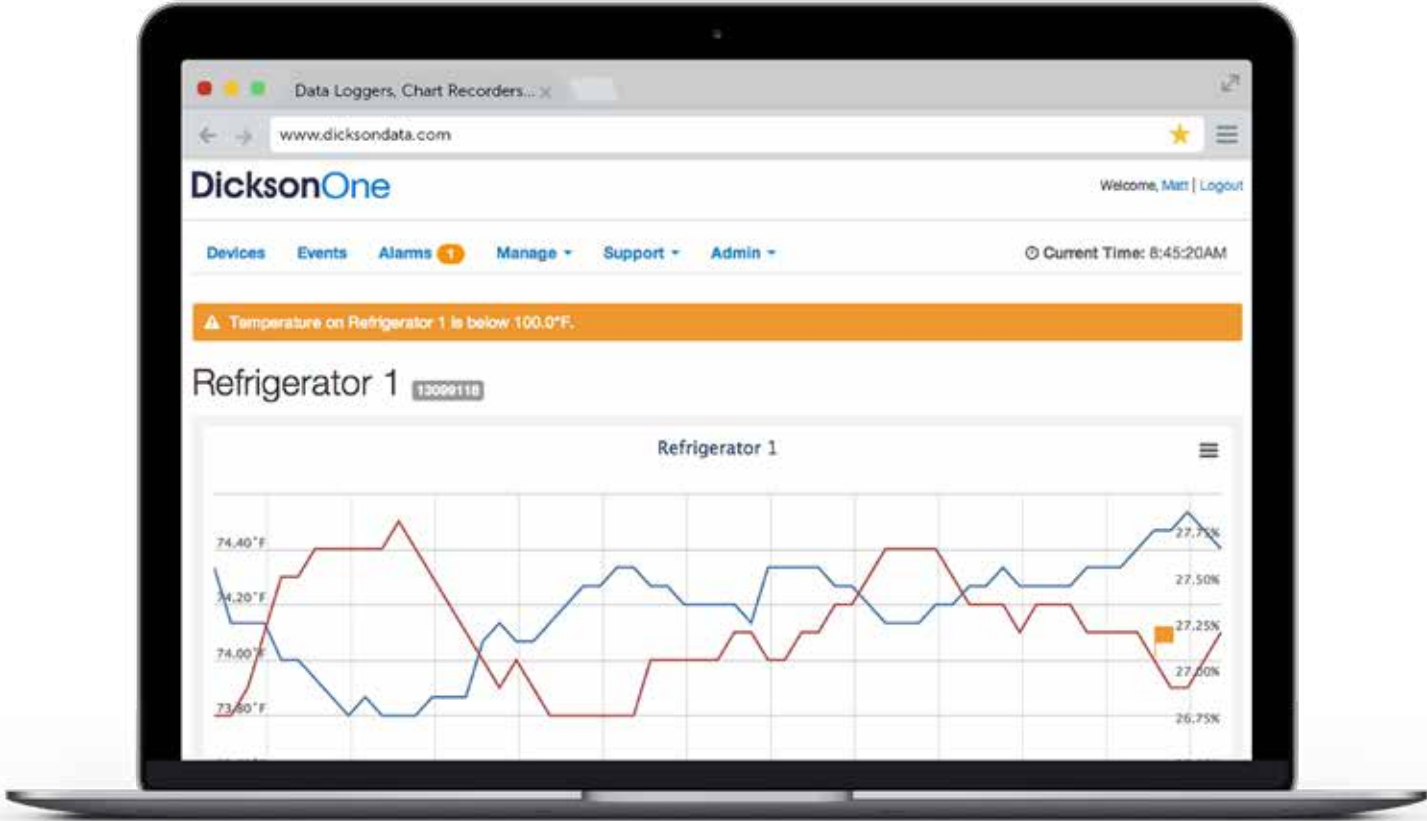
DicksonOne





TAKE POWER OVER YOUR ENVIRONMENT

We've re-thought temperature and humidity monitoring making it easier, scalable, and cost effective.
Your data. How you want it. When you want it.



Secure
We utilize bank-grade security and Amazon Web Services for unparalleled reliability.



Anywhere
Wherever you are, access your data anywhere, anytime, 24/7.



Infinite
Securely store all your data in the cloud, whether you're recording for days, months, or years.



Automated
Devices send all collected data to the DicksonOne servers automatically, so you don't have to.



On Your Time
Create customizable reports delivered exactly when you want them.



Immediate
Receive real-time email, text, or phone call alarms when excursions occur.

Stay Connected. **Wherever You Are.**



01

THE GRAPH

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

02

YOUR CHANNELS

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

03

MONITORING

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

04

SETTINGS

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

The Touchscreen

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



DicksonOne Enabled • Capacitive LCD Touchscreen
Replaceable Sensors • WiFi, Ethernet, and USB Connectivity

Email us at support@dicksonone.com | Talk to a specialist at 800.452.4626

DicksonOne
Touchscreen

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



DicksonOne
Display Logger

MODEL	REMOTE PROBE	PRICE
DWE	DicksonOne Wifi/Ethernet Connection and Download	Starting at \$350



DicksonOne **Software**

One of the most common pain points when discussing monitoring is the retrieval of data. DicksonOne loggers send data to the cloud automatically, freeing up resources to do what they do best.

Talk to a specialist now | 630-543-3747

BASIC	STARTER	REGULAR	PLUS	ENTERPRISE
\$0	\$300	\$725	\$1,400	Call for Quote
Unlimited Devices Data stored for 30 days 1 hour sample interval	1-10 Devices Data stored for life of account Multiple sample rates Email, Phone, & Text Alerts API Access	11-25 Devices Data stored for life of account Multiple sample rates Email, Phone, & Text Alerts API Access	26-50 Devices Data stored for life of account Multiple sample rates Email, Phone, & Text Alerts API Access	51+ Devices Data stored for life of account Multiple sample rates Email, Phone, & Text Alerts API Access

Per device billing
now available!

\$3

per device, per month
requires a credit card



Different parts of the country define cold in different ways. If you're in Texas, you may think the low 60's is suitable coat wearing weather. If you're in Connecticut you may not consider it cold enough for a coat until it gets into the low 40's.

There is a limit to how cold something can actually be though. That's absolute zero, or a paltry -459.67°F . Scientifically speaking, a declining temperature slows down the motion of particles and molecules that make up matter.

A great example of this is water. At a high temperature, the particles move very quickly and become a gas that can be moved through, but at low temperatures the particles slow and the water becomes solid ice.

Low temperature in water means slower moving molecules. If you were to put a few drops of food coloring into a bowl of water, this reduced motion of particles means the food coloring would transfer slower as the water temperature decreases. Should the temperature reach absolute zero then the molecules would cease to move at all.



To this point in human history, humanity has never been able to make anything reach absolute zero. There's always been a floor to the lower limit of what we could achieve. Thanks to some work done by the National Institute of Standards and Technology (NIST), we've been able to go colder than ever before. Below is an excerpt from the Washington Post that explains this in detail.

"The rules of physics say it's impossible to cool an object to absolute zero, to remove all thermal energy until its atoms come to a standstill. But researchers at the National Institute of Standards and Technology are getting really close. In a paper published Wednesday in the journal *Nature*, they describe using a laser to make a microscopic aluminum drum colder than anything like it has been cooled before. In doing so, they defied the quantum limit for supercooling mechanical objects."

Gizmodo then looked at the process behind the breakthrough.

"The experiment that has now circumvented this issue consisted of a tiny 20 micrometer by 100 nanometer drum, linked up to a circuit designed to cool things in the usual way. Microwaves bounce around inside the circuit, causing it to resonate and vibrate and generate its own photons. The photons depart and take a phonon, a quantum unit of vibration, with them, cooling the drum a tiny bit with each exiting photon. For this experiment, the scientists also shined a special kind of light—squeezed light—onto the drum's head, sending the temperature below the quantum backaction limit. Quantum mechanics says that you can resolve some measurements of light at the expense of others. The squeezed light takes advantage of this property, allowing the scientists to remove one kind of fluctuation in the light's amplitude."

According to John Teufel, a physicist at the NIST and author of the study, nothing like this has ever been done before.

"It's the first time someone has used squeezed light to do better cooling," Teufel said. "We're not at absolute zero yet because our squeezing isn't perfect."

Did you know that the coldest observed location on Earth is Vostok Station in Antarctica? Temperatures were recorded at -128.6°F July 21, 1983.



That may be true, but they're closer than they ever have been. This new process was able to drop the drum's temperature below the quantum backaction limit by a factor of two. This could all lead to some pretty neat scientific discovery according to Sarah Kaplan of the Washington Post.

"...Eliminating the distraction of an object's thermal motion allows scientists to finally see the motion that results from quantum energy, which is much more interesting. It will give insight into the forces that dictate how the universe functions at atomic and subatomic scales."

While our RKTC K Thermocouple doesn't quite make it to absolute zero it does have the ability to reach down to -300°F and as high as 2000°F . Luckily, most regulated temperature monitoring falls well within those ranges, and we even offer certification from the same group that's breaking temperature barriers.

If you're looking for options on how to measure the temperature or humidity of your facility, lab, warehouse, oven, refrigerator, et al, check with Dickson for a likely solution that best meets your needs. Measuring to keep your auditors happy is one thing. Meeting audits because it keeps your customers and your loved ones safe is another point entirely. When every point matters Dickson is there for you; no coat required.

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



Put a friendly face to your data.

Dickson is exhibiting at a trade show near you. Whether you're new to data monitoring or a long-time friend of ours, feel free to stop by and put a face to the name of the world's widest selection of top quality instruments for your monitoring needs.

SETTING THE STANDARD

Calibration Services

Calibrations are essential to all devices that measure a variable. However, we often get the questions, “Why isn’t it accurate already?” “Isn’t it made to be accurate?” The answers are: it is, and yes. However, while our devices are accurate without calibrations, we can’t be positive they are accurate to a specific measurable degree (and thus can’t prove their accuracy) unless we perform a calibration.

HOW CALIBRATION WORKS

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 the sensor and the standard, we adjust the sensor to align with the standard.

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.

CALIBRATION OPTIONS

What works for my company?

1-POINT NIST

- One specific temperature point 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 point to best reflect your application

Need help? Let us be your calibration expert. | (630)-923-6565 | support@dicksondata.com

CONVENIENCE IS KEY

ALL YOUR CALIBRATION DATA RIGHT ON THE SENSOR.

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, but save you time and resources.

1 2
3 4

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



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

TEMPERATURE MAPPING

Want to know your facility better?
Leave it to us.

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.

Some industries are required to have documented evidence that environments are under state of control. Let Dickson's skilled professionals get you up to date.



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 defensible in an audit.



IN-HOUSE 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.



Want more information? Contact a specialist today!
630.923.6565

LET'S GET STARTED


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.

SOLUTIONS TO SUIT YOU

VALIDATION SERVICES

IQ

INSTALLATION QUALIFICATION



TESTS

VERIFICATION OF CORRECT EQUIPMENT INSTALLATION

ENSURES


CORRECT INSTALLATION OF SYSTEM PER SPECS

ESTABLISHES

A BASELINE FOR EQUIPMENT

OQ

OPERATIONAL QUALIFICATION



TESTS

VERIFICATION OF CORRECT EQUIPMENT OPERATION

ENSURES


CORRECT OPERATION OF SYSTEM PER SPECS

VERIFIES

SYSTEM MEETS CLAIMS FROM PARAMETER

PQ

INSTALLATION QUALIFICATION



TESTS

VERIFICATION OF CORRECT EQUIPMENT PERFORMANCE

ENSURES

CORRECT PERFORMANCE OF SYSTEM PER SPECS

VERIFIES

SYSTEM MEETS CUSTOMER'S INTENDED PURPOSE

Why Dickson?

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 630.923.6565

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

MODEL	FEATURES	STARTING PRICE
KT6P5	6 Inch Temperature	\$599
KT8P0	8 Inch Temperature	\$419
TH6P1	6 Inch Temperature and Humidity	\$489
TH8P0	8 Inch Temperature and Humidity	\$489



4 and 3 Inch Models

MODEL	FEATURES	STARTING PRICE
SL4350	4 Inch Temperature	\$239
SL4100	4 Inch Temperature	\$239
SC367	3 Inch Temperature	\$239



DATA LOGGERS

For data loggers, information (temperature/humidity measurement and date and time) is stored as information. 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.

Compact

SP125 Temperature Logger Accuracy: $\pm 1.2^{\circ}\text{F}$, $\pm .7^{\circ}\text{C}$ Range: -10°F to 176°F , -23°C to 80°C	\$119
TP125 Temperature & Humidity Logger Accuracy: $\pm 0.8^{\circ}\text{F}$, $\pm .44^{\circ}\text{C}$ Range: -10°F to 176°F , -23°C to 80°C Humidity: $\pm 2\%$ RH from 0 to 60%; $\pm 3\%$ RH from 60 to 95%	\$199
SK550 Temperature Logger Pack of 12 Accuracy: $\pm 1.8^{\circ}\text{F}$, $\pm 1^{\circ}\text{C}$ Range: -4°F to 158°F , -20°C to 70°C	\$699
TK550 Temperature & Humidity Logger Pack of 12 Accuracy: $\pm 1.8^{\circ}\text{F}$, $\pm 1^{\circ}\text{C}$ Range: -4°F to 158°F , -20°C to 70°C Humidity: $\pm 2\%$ RH from 0 to 60%; $\pm 3\%$ RH from 60 to 95%	\$999

High Temp Solutions INDICATORS

HT300 Waterproof, High Temperature Data Logger HACCP and FDA Compliant. USB Download. IP68 Rating. Temperature Range: -40°F to 257°F , -40°C to 125°C 1 & 3 Point Calibration options available.	\$349
HT350 High Temperature Process Logger HACCP Compliant. K-Thermocouple Probe, USB Download, and a large temperature range. Temperature Range: $\pm 1.8^{\circ}\text{F}$ from -22 to 122°F 3.8°C ($\pm 1^{\circ}\text{C}$ from -30 to 50°C 2.1°C) 1 & 3 Point Calibration options available.	\$349

Display

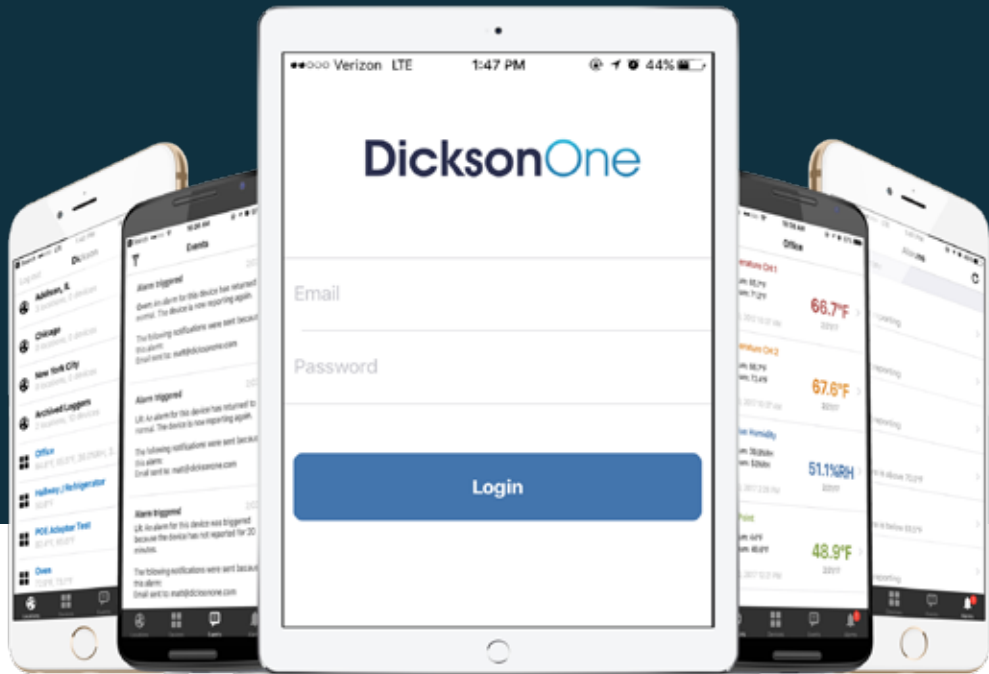
SP425 Data Logger with Large Display and Probe Accuracy: $\pm 1.2^{\circ}\text{F}$, $\pm .7^{\circ}\text{C}$ Range: -300°F to 2000°F , -184°C to 1093°C	\$159
TP425 Temperature & Humidity, Pack of twelve units Accuracy: $\pm 0.8^{\circ}\text{F}$, $\pm .44^{\circ}\text{C}$ Range: -4°F to 158°F , -20°C to 70°C Humidity: $\pm 2\%$ RH from 0 to 60%; $\pm 3\%$ RH from 60 to 95%	\$249



Instant Data Solutions INDICATORS

TC700 Touchscreen Handheld Indicator Instant temperature/humidity data. No-slip silicone cover. Battery powered. Temperature Range: -40 to 185°F , (-40 to 85°C) Humidity Range: 0 to 95% RH (non-condensing)	\$299
TH700 Touchscreen Handheld Indicator Instant temperature/humidity data. No-slip silicone cover. Battery powered. Temperature Range: -200 to 1999°F , (-128 to 1093°C)	\$299

MILLIONS OF DATA POINTS
RIGHT IN YOUR POCKET



We know you're always on the move.
So we made sure your data could be, too.

With the DicksonOne mobile app you can instantly access all
your data and location information in the cloud.
Anywhere. Anytime.



SAVING THE WORLD

— with Smart Design —

The atomic clock just shifted closer to midnight than it's been since the 1950's.
According to the atomic scientists, the end of the world is nigh. That hasn't stopped
developers from innovating on the IoT to try and save the planet they live on.

WATER, WATER EVERYWHERE

NOR ANY DROP TO DRINK

- Samuel Taylor Coleridge

In the past we’ve spent considerable time discussing a variety of smart devices on our blog. We’ve covered everything from connected trash cans, to smart inhalers, and even our own SaaS based temperature monitoring devices. A new device is looking to make headway on the market that can fundamentally shift a major global issue, while providing some benefit back to the user. It’s a shower head that’s connected to more than the pipes in your house.

The new device is being marketed as an opportunity to preheat a shower from bed. When I’d first read that, it seemed like an incredible waste of water and made me think the exact opposite of everything I’ve talked about above. Then I looked more into what made the unit so smart.

Not only does this showerhead power off once the water has reached a desired temperature, but it can be programmed to limit how long a person can waste time in the shower. A device that sounded terribly wasteful at first glance actually has incredible potential. What it could do to help limit a country of over indulgers is difficult to quantify. That doesn’t mean we won’t try. Even if we are about more than data, it’s still our thing, after all.

According to research, the average shower uses 2.1 gallons of water per minute. With an average American shower time of 8.2 minutes, that’s more than 17 gallons per shower, per person, per day!

CONSIDER THE FOLLOWING

If a 2009 study conducted by AOL Health is accurate then nearly two in three Americans shower daily. Based on those numbers we’re able to estimate that we use more than 3.6 billion gallons of water each day because of our hygiene habits. Comparatively that means that a Lake Tahoe worth of water is used to keep Americans clean approximately every ten days. That’s a lot to swallow.

If everyone in the country was able to limit their showers to five minutes each day, we’d save nearly 17 Lake Tahoes every year. That’s 1.41 billion gallons of water per day or enough to provide drinking water to more than 2.8 billion people on a daily basis. In another sense, that’s enough to quench the thirst of everyone in the western hemisphere in a single day--twice.

The fact that one billion people on earth go thirsty every day doesn’t seem quite so daunting now, does it?

To bring the problem back home, parts of California have experienced drought conditions for years. In fact, they’ve been under a state of emergency for three years now and it’s impacted the lives of 24 million people. The impact can be far reaching and includes things like ground sinkage, seawater intrusion, and wildfires. From an individual’s perspective, the hardest hit county has been Tulare county where nearly 5,500 citizens have been forced to live without water.

Unfortunately, providing water to the world isn’t as easy as taking shorter showers. There are a lot of other factors involved including things like location and, in many cases, the temperature and humidity of a region.

If America’s shower habits could be tweaked to provide water for billions, imagine what a little concentrated effort could do for these Americans living without the most necessary of resources.

We’ve talked in the past about how moisture farming could provide relief to drought stricken parts of the world. New technology and a better understanding of science has even led to innovations for growing food in extreme environments. Knowing where we’re at and how we compare to other parts of the world is a major part in the process toward finding a solution. Recognizing a problem is often the part that most often hinders progress. Now, a problem has been identified. It’s up to us to architect a future that solves it. That’s the genius that smart design can give to the world.

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



The Idea

THAT SMALL LIFESTYLE CHANGES CAN YIELD BIG RESULTS

IF AMERICANS SHORTENED THEIR SHOWERS TO

5 MINUTES

WE'D HAVE ENOUGH WATER TO...

HOW OUR WATER USAGE IS AFFECTING AMERICANS DIRECTLY

TAKE THE CALIFORNIA DROUGHT...

3+ YEARS IN A STATE OF EMERGENCY AFFECTING

24 MILLION PEOPLE

RESULTING IN

Unruly Wildfires

Ground Sinkage

Seawater Intrusion

Save Seventeen Lake Tahoes

EVERY YEAR

SAVE 1.41 BILLION GALLONS A DAY

which is equal to

DRINKING WATER FOR 2.8 BILLION OR EVERYONE IN THE WESTERN HEMISPHERE

x2 TWICE

Want to learn more about conserving water? Read more at blog.dicksondata.com!

DICKSON

DICKSON

930 South Westwood Avenue
Addison, Illinois 60101-4917

Phone | 800-323-2448
Fax | 800-676-0498
Web | DicksonData.com

PRSR:STD
U.S. Postage
PAID
The Dickson
Company

Points that Matter



Dickson will be at Breakthroughs in Washington D.C.
this year! Come visit us at Booth 1029!

DICKSON BLOG

blog.dicksondata.com



Connect
DicksonData



Like
Dickson



Follow
@dicksondata



Subscribe
DicksonData



THE DSB

Read more on page 20