



DICKSON

insights

September 2016 • CD304



TEMPERATURE & SLEEP

The Number
Behind The
Slumber

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Catching Some Zzzz's.



It's Time To Hit The Snooze Button.

JEFF RENOE • DICKSON INSIGHTS EDITOR-IN-CHIEF

Time is often considered one of our most valuable personal resources. As the amount of time we work goes up, the amount of time we have to give goes down. When that happens, we look at things in our lives that we can cut in order to accomplish everything we need. All too often, it's sleep that gets left behind.

Add to that the fact that 60% of Americans say they experience a sleep problem almost every night, and you've gone from cutting your sleep to severely reducing it. **Americans have an issue on their hands; they aren't getting enough rest.** Experts may now have the solution. They believe that sleep may actually be more tightly regulated by temperature than by light.

In the pages that follow you'll learn more about how to give yourself the best conditions to sleep and come to understand just what the cost of such rest can be.

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



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FEATURE STORY

17-19 Temperature & Sleep

From The Ground Up: Scientists Develop Smallest Genome

Evolution is the process by which organisms are able to grow and develop over time. It's what has allowed the peppered moth to survive the industrial revolution, mice to develop an immunity to rat poison, and lizards to grow longer legs to avoid attacks from fire ants. It's also the process that's frustrated biological engineers for as long as such a field has existed.

"Evolution has given us a real mess," said Chris Voigt, a biological engineer from MIT. "We've been trying to do genetic and biological engineering, (and) it's really just bubble gum and sticks, piecing together whatever work," Voigt continued.

After decades of work, biologists may be closer than ever to a solution. Craig Venter, Founder, Chairman, and Chief Executive Officer of the J. Craig Venter Institute, and his colleagues have created a new organism with the smallest genome of any known cellular life form. It's the closest that scientists have come to creating a cell in which every gene and protein is fully understood. That is a good start, but there is still room to improve.

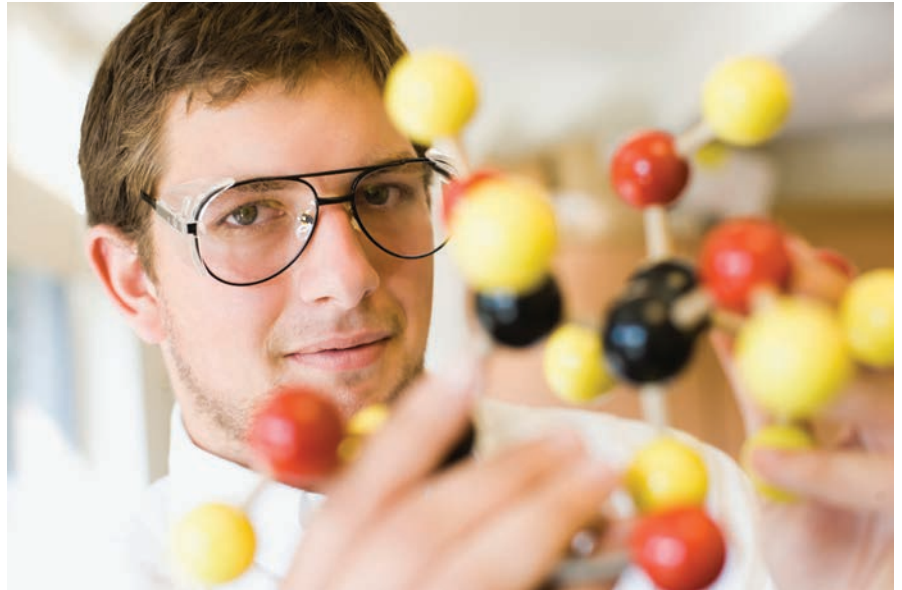
According to Clyde Hutchison, the lead author of the story, "We want to understand at a mechanistic level how a living cell grows and divides."

As of now, according to Hutchison, there's "no cell that exists where the function of every gene is known." That understanding is the point of the research.

"(We'd be) in a better position to engineer cells to make specific products," Hutchison continued.

Here's a brief outline of the preliminary work as discussed in The Scientist.

*The team's starting point was the bacterium *Mycoplasma genitalium*, which has the smallest known genome of any living cell with just 525 genes. However, it also has a very slow growth rate, making it difficult to work with. To practice synthesizing genomes and building new organisms, the team therefore turned to *M. genitalium*'s cousins, *M. mycoides* and *M. capricolum*,*



*which have bigger genomes and faster growth rates. In 2010, Venter's team successfully synthesized a version of the *M. mycoides* genome (JCVI-syn1.0) and placed it into the cell of a *M. capricolum* that had had its own genome removed. This was the first cell to contain a fully synthetic genome capable of supporting replicative life.*

Once this was accomplished, the team needed to make the genome smaller. The team decided to try and speed through the process by designing their own genome, building it and installing it inside the cell; however, that didn't work out the way the team had planned.

"We thought we knew enough, that it would be that much faster," said Hutchison. "We weren't completely right about that (and) it took quite a bit longer than we thought."

After a number of additional rounds of consideration and testing, the team had a genome that was able to successfully support life. Even though they still don't understand each gene's function, they're further along now, than they were. Leroy Hood, the president of the Institute for Systems Biology in Seattle, had thoughts on the research.

"This is a really pioneering next step in the use of synthetic biology," Hood said.

That doesn't mean they're done yet though. More than a third of the genes the researchers removed have purposes that remain unknown.

"I also think we kid ourselves about how much we know about the genomes of organisms. There's still an enormous amount of dark matter," Hood continued.

It's that kind of work that the researchers find most fascinating.

"(The ones we don't understand), in a way, are the most exciting," Hutchison said, "because they might represent some new undescribed function that has spread through other life forms."

As research continues to prove new findings, the field becomes more equipped to genetically engineer bacteria that can produce fuel, pharmaceuticals or even remove toxins to help strengthen your assets. It's the foundation necessary to keep the field from relying on bubble gum and sticks.

D

Cold Front:

Weather Changes Bring Confusion

Last year odd seasonal temperatures left more than meteorologists confused. It's also wreaked havoc on plant life around the country.

When temperatures are out of whack then the process that allow plants to recover from the winter season is thrown off. Robert Black from Catoctin Mountain Orchard in Maryland saw reason to worry last year as he monitored his plants throughout the season.

"I am concerned about an early white peach (tree on our property) from California called Snow Angel," he'd said as he prepared for the spring bloom.

According to a story out of Frederick, MD, his concerns were well founded. The constant shifts we'd experienced in weather made it more and more likely that the dormancy of trees and other plant life across the country would be affected.

Dormancy, the exercise of a tree losing it's leaves for the fall and preparing for winter, is usually triggered by shorter days and cooler temperatures. When these things both happen, a chain reaction begins that allows a tree's leaves to fall, and move water and sugars into the root system to help keep them strong. The sugars help promote healthy root growth and the water allows the plants to survive during dry periods of the season.

As the seasons change again, a tree exits dormancy due to a combination of hormones and enzymes within it. The process varies based on factors like tree species, geography and sometimes even on a tree to tree basis. However, one thing remains consistent; the key environmental cue for spring bloom is cold temperatures. Even though the needed temperature depends on the factors listed above, consistency is key.

Some species of trees only need weeks of cool temperatures, whereas others may need months. In the New England area, you can expect a trembling aspen to be among the first



sets of trees to bloom and the white ash trees to be among the last. If you were to compare a red maple in the region to one that was native to Florida, you could see the time needed reduced from a few months to almost no time at all.

Black's concern was related to the inconsistencies in the weather. Chicago, for example, saw a period an 80° days sandwiched between days with sub freezing temperatures and snow as late as April. This may have been a direct effect of the powerful El Niño that occurred last year, however it'll be worth watching again as the seasons start to transition. Those inconsistencies could have affected his orchard's trees. At the time, he saw them starting to bud and felt, "most, if not all, were damaged."

The Wall Street Journal touched on similar issues and concerns early in the season when temperatures were well above normal across the Midwest and Northeast. According to their article, constant shifts in weather patterns aren't likely to damage plants over the long term. However, any blooms that may have appeared in the warmth and then are killed off because of an additional period of cold are unlikely to reappear this spring. If that happens, the sup-

ply of fresh fruit during the year's harvest would be affected.

Bob Rarthel of Mequon, WI. raises 22,000 apple trees. The weather he'd seen also gave him reasons for concern. The warm air could have prevented the trees from sustaining the annual cold weather protection they produce when preparing for dormancy.

"The potential for damage is high," he said during an interview with the paper.

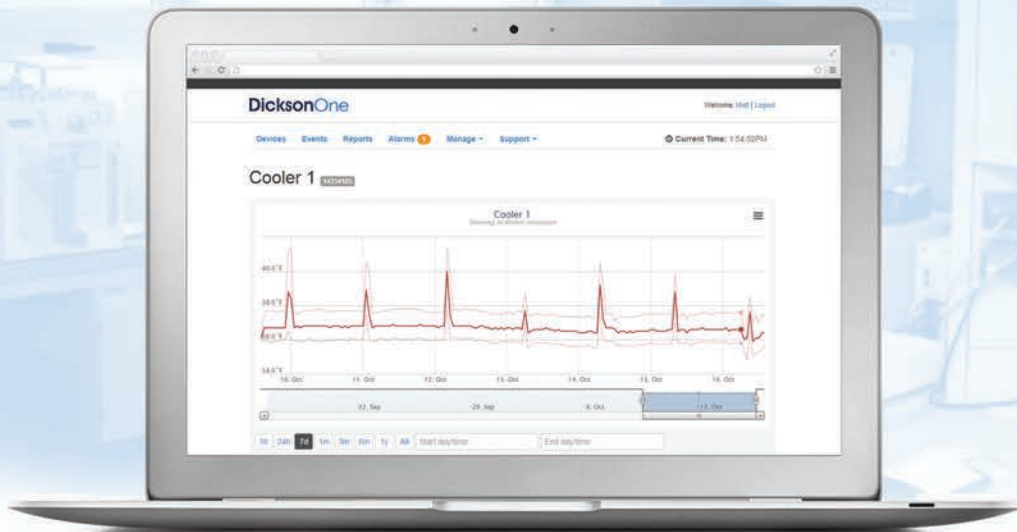
Concern wouldn't be limited to apple trees either. Cherry trees in Wisconsin and peach and nectarine trees in Massachusetts also provided worry for growers last year. Another year of inconsistent weather could drastically affects the \$17.5 billion dollar industry. The trouble could show up in everything from our diets and our pocketbooks to our country's rural economy.

Only time, and Mother Nature herself, will tell just what this winter season will bring. We can only hope that this year brings more than the inconsistency it has in months past.

D

DicksonOne

Wireless Temperature and Humidity Monitoring



HOW IT WORKS

When you log onto **DicksonOne.com**, your environmental data, from every location, appears before your eyes. Charts and pens, get outta here. USB cords and software on a disc, you too. **DicksonOne** Loggers transmit your data wirelessly to the **DicksonOne** Cloud, where you can access it anytime.



Power Over Your Environment

EMAIL, TEXT & PHONE CALL ALARMS

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

The screenshot shows the 'Alarms' section of the DicksonOne interface. It includes a navigation bar with 'Devices', 'Events', 'Reports', 'Alarms' (active), 'Manage', 'Support', and 'Admin'. The current time is 2:21:02 PM. The 'Current Alarms' section shows one active alarm: '01/20/2015 03:08:13 PM CST (19 days, 23 hrs, 11 mins ago)' for a 'Touchscreen Vaccine Fridge' with the condition 'Temperature < 55.0°F' and a 'Recent Reading' of '53.8°F' at '01/20/2015 04:53:13 PM CST'. Below this is the 'Alarm history' section with two past alarms: one from '01/19/2015 02:53:13 PM CST' lasting '7 hrs, 30 mins' and another from '01/19/2015 04:43:13 AM CST' lasting '6 hrs, 20 mins'. Both history entries also show the device as 'Touchscreen Vaccine Fridge' and condition as 'Temperature < 55.0°F'. Each alarm entry has an 'Acknowledge' button.

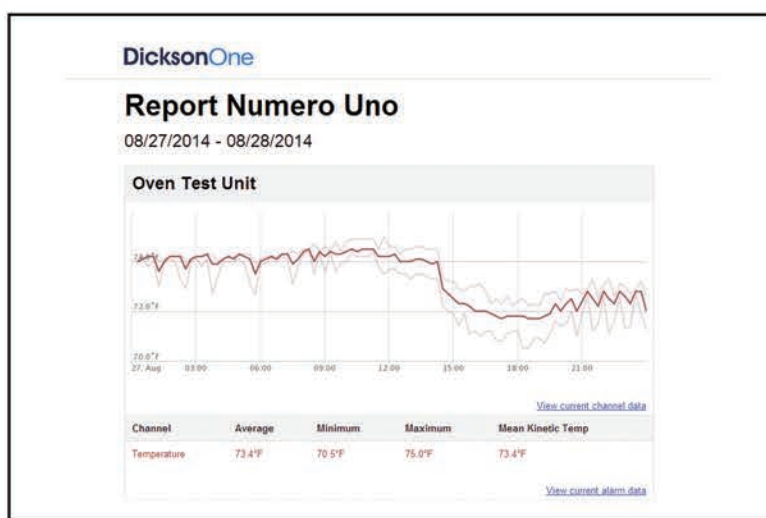
Alarm Triggered	Device	Condition	Recent Reading
01/20/2015 03:08:13 PM CST (19 days, 23 hrs, 11 mins ago)	Touchscreen Vaccine Fridge	Temperature < 55.0°F	53.8°F 01/20/2015 04:53:13 PM CST

Alarm Triggered	Device	Condition	Duration
01/19/2015 02:53:13 PM CST	Touchscreen Vaccine Fridge	Temperature < 55.0°F	7 hrs, 30 mins
01/19/2015 04:43:13 AM CST	Touchscreen Vaccine Fridge	Temperature < 55.0°F	6 hrs, 20 mins

CUSTOMIZABLE REPORTS

The **DicksonOne Reporting Suite** allows you to:

- Create and customize reports for any and all of your loggers
- Choose who in your organization will receive which reports
- Change and modify the frequency of reports



TEMPERATURE MAPPING SERVICES

KEEPING YOUR PRODUCTS SAFE

HOW IT WORKS:



CALL US: 630.543.3747



WE MAP TO YOUR NEEDS



WE PROVIDE DIRECTION

WHAT YOU GET:

- Testing or Validation Plans
- Problem Spot Analysis
- Refrigerator, Freezer, Incubator and Warehouse Mapping
- Acceptance Criteria Creation
- Temperature Recovery Studies
- Temperature and Humidity Monitoring Consultation
- Testing Summary Report

WHAT WE OFFER:

- 90 Years of Temperature Mapping Experience
- A team of expert Consultants, Engineers, and Mapping Technicians
- High Accuracy, High Reliability Data Loggers
- A2LA Calibrated Temperature Recorders
- Secure Data Recovery, Analysis and Distribution
- Analysis Performed with 21CFR Part II Compliant Software

Meet The New **DicksonOne** Logger



THE BEST JUST GOT BETTER

Larger, More Detailed Display ■ Compatible with New Universal Replaceable Sensors
Over the Air Updates ■ Smaller Footprint
Updated Design



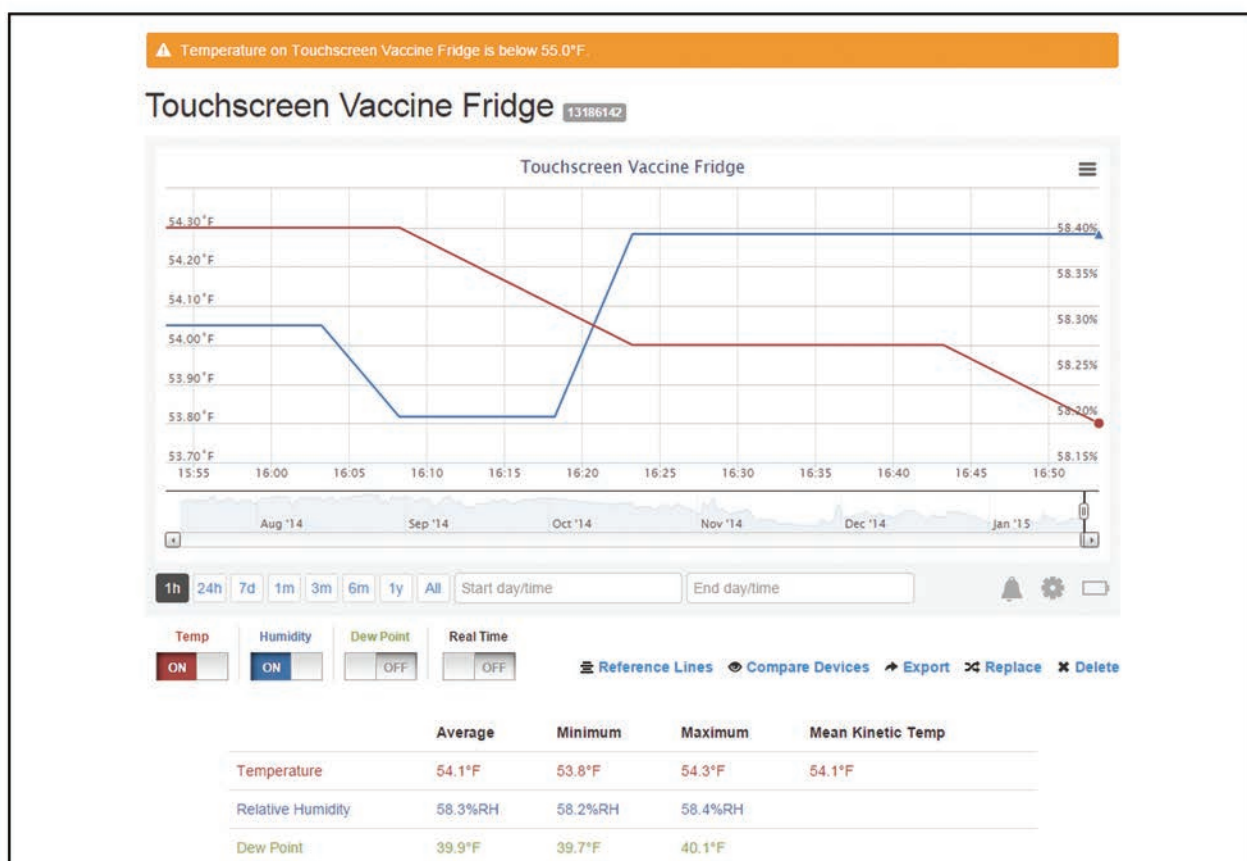
DicksonOne Touchscreen Loggers

Our goal when designing the new line of **Touchscreen Data Loggers** was to create a feature-heavy and easy-to-use device that allowed users access to their entire data history, anywhere. We pushed the limits of connectivity, user-interface, and functionality, to deliver the most robust data logger on the market.

Data At The Source

- 1 **The Graph** Your environmental history just got a whole lot easier to navigate through. We overhauled the user-interface, and made it easy to view and manage your data.
- 2 **Your Channels** Every touchscreen will automatically calculate the minimum, maximum, and average temperatures of your selected view.
- 3 **Real-time Monitoring** Push the play button, and your device will update back to the most recent set of readings.
- 4 **Device Settings** Your Touchscreen is robust. When you navigate your devices settings, you can adjust sample rates, set alarms, and connect to DicksonOne.





NOW WITH DicksonOne

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

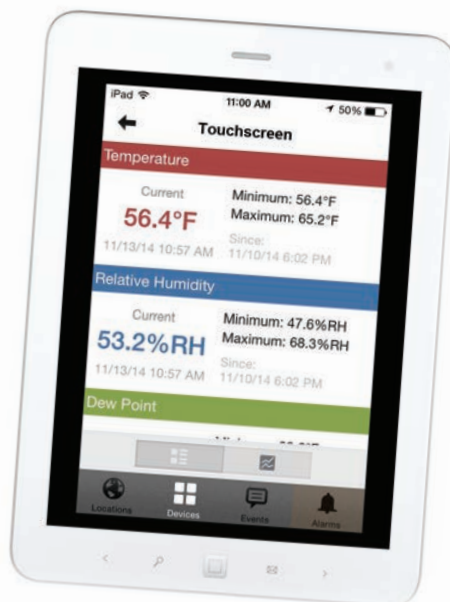
DicksonOne Allows You To:

- Get email, text, or phone call alarms from your Touchscreens.
- Access every one of your Touchscreens' data history on one website.
- Generate customizable reports, delivered directly to your inbox when you want.



The new Touchscreen allows for USB download to DicksonWare.

Only DicksonWare A017/A027 will function with Touchscreen Loggers.



DicksonOne Touchscreen Pricing

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



The TSB, TWE, and TWP all allow for basic USB download independent of DicksonOne. Use DicksonWare A017/A027 for USB download with these models.



DicksonOne Display Logger Pricing

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



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 a rolling window of 30 Days of data. One hour sample rates for unlimited loggers at no cost.



Calibration In Five Seconds



HOW REPLACEABLE SENSORS WORK

Dickson Replaceable Sensors are Dickson's answer to the headache of calibrating your temperature or humidity monitoring device. When your device needs to be calibrated, just pop off your sensor and pop on a new one. It's that easy. Now when you order a DicksonOne or Touchscreen Logger, you get the benefit of never having to ship a logger back to us again.

WITHOUT REPLACEABLE SENSORS

1. Order a recalibration for your device
2. Acquire a Return Authorization Code from a Dickson Representative
3. Take unit out of its environment
4. Move products out of environment/install backup monitoring system
5. Box unit up
6. Ship unit to Dickson
7. Dickson recalibrates unit and ships it back
8. Receive the unit
9. Disassemble backup system/move product back into environment
10. Reinstall unit/system

Total Down Time: 7-10 Days



WITH REPLACEABLE SENSORS

1. Order a Replaceable Sensor
2. Take old sensor off, put new sensor on

Total Down Time: 0 Days

All DicksonOne and Touchscreen Loggers are
RS COMPATIBLE.

High Temp Solutions



- 1 HT 300 Waterproof, High Temperature Data Logger** HACCP and FDA Compliant. USB Download. IP68 Rating. Temperature Range -40° to 257°F (-40° to 125°C). **\$349**



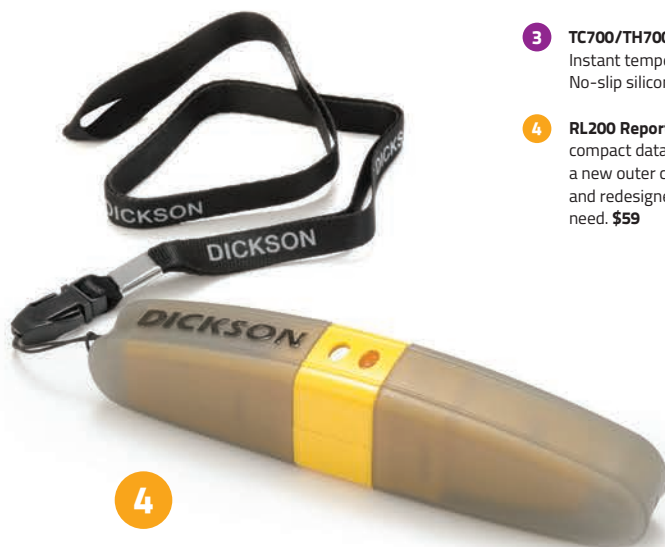
- 2 HT350 High Temperature Process Logger** HACCP Compliant, K-Thermocouple Probe, USB Download, and a large temperature range. Temperature Range -40° to 257°F (-40° to 125°C). **\$349**

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

Instant Data Solutions



- 3 TC700/TH700 Touchscreen Handheld Indicator** Instant temperature or temperature/humidity data. No-slip silicone cover. Battery powered. **\$299**



- 4 RL200 Report Logger** We decided to make the best compact data logger on the market, our RL200. With a new outer case, user selectable logging times, and redesigned PC interface, it's exactly what you need. **\$59**

Temperature and Temperature/Humidity Chart Recorders

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



8 and 6 Inch Models

Eight and Six Inch Chart Recorders display detailed temperature and humidity values.

MODELS AND FEATURES

KT6P	6 Inch Temperature	Starting at \$369
KT8P	8 Inch Temperature	Starting at \$419
TH6P	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 \$449
0-1000 PSI	PW875 \$749	

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

MAPPING DATA LOGGERS



SP125 \$119 Temperature Logger. Accuracy $\pm 1.2^{\circ}\text{F}$, $\pm 0.67^{\circ}\text{C}$. Range -10 to 176°F , -23 to 80°C .

SP175 \$229 Temperature Logger with Thermocouple Probe. Accuracy $\pm 1.8^{\circ}\text{F}$, $\pm 0.1^{\circ}\text{C}$. Range -300 to 2000°F , -30 to 50°C . A203 Probe required for $+500^{\circ}\text{F}$.

TP125 \$199 Temperature and Humidity Logger. Accuracy $\pm 0.8^{\circ}\text{F}$, $\pm 0.45^{\circ}\text{C}$. Range -10 to 176°F , -23 to 80°C .



SK550 \$699 Temperature. Pack of twelve. Accuracy $\pm 1.8^{\circ}\text{F}$, $\pm 1^{\circ}\text{C}$. Range -4 to 158°F , -20 to 70°C .

TK550 \$999 Temperature & Humidity. Pack of twelve. Accuracy $\pm 1.8^{\circ}\text{F}$, $\pm 1^{\circ}\text{C}$. Ranges -4 to $+158^{\circ}\text{F}$, -20 to $+70^{\circ}\text{C}$.

DISPLAY DATA LOGGERS



SM300 \$249 Temperature Logger. Range -4 to 158°F , -20 to 70°C . Accuracy $\pm 0.8^{\circ}\text{F}$, $\pm 0.44^{\circ}\text{C}$.

SM320* \$299 Temperature Logger. Remote Probe. Range with Probe -300 to 2000°F , -184 to 1093°C . Accuracy $\pm 1.8^{\circ}\text{F}$, $\pm 1.0^{\circ}\text{C}$.

SM325* \$399 Temperature Logger. Two Remote Probes. Range with Probe -300 to 2000°F , -184 to 1093°C . Accuracy $\pm 1.8^{\circ}\text{F}$, $\pm 1.0^{\circ}\text{C}$.

SM420 \$499 Temperature Logger. Remote Probe. Range with Probe -50 to 350°F , -45 to 176°C . Accuracy $\pm 0.5^{\circ}\text{F}$, $\pm 0.28^{\circ}\text{C}$.

TM320 \$299 Temperature and Humidity Logger. Range -4 to 158°F , -20 to 70°C . Accuracy $\pm 0.8^{\circ}\text{F}$.

TM325 \$399 Temperature and Humidity Logger. Remote Probe. Range -40 to 185°F , -40 to 85°C . Accuracy $\pm 0.8^{\circ}\text{F}$.



SP425 \$159 Temperature Logger. Digital Display. Accuracy $\pm 1.2^{\circ}\text{F}$, $\pm 0.67^{\circ}\text{C}$. Range -4 to 158°F , -20 to 70°C .

TP425 \$249 Temperature and Humidity Logger. Digital Display. Accuracy $\pm 0.8^{\circ}\text{F}$, $\pm 0.45^{\circ}\text{C}$. Range -4 to 158°F , -20 to 70°C .

Better Sleep Could Be A Matter Of **DEGREEZZZ.**



Temperature can affect the quantity and quality of your sleep.

Depending on where you lay your head at night, you may have used the phrase, **"good sleeping weather,"** at some point in your life. While this may be an unknown idea to many in warmer climates, experts now say that sleep may be more tightly regulated by temperature than by light.

This theory was covered in detail in the Wall Street Journal¹ earlier this year, where they spoke with Matthew Walker, a professor of neuroscience and psychology at the University of California, Berkeley. According to him, "People tend to set their ambient house or bedroom temperature a little higher than is actually optimal for sleep."

According to research done by the Harvard School of Medicine², People often get an insufficient amount of sleep because they overlook the potential long-term health consequences associated with sleeplessness. While genetics, poor nutrition, and a lack of exercise are often attributed to things like obesity, diabetes and heart disease, sleep irregularities, and a lack thereof, is an important risk factor for consideration. In fact, many experts have concluded that getting enough high-quality sleep may be as important to health and well-being as nutrition and exercise.

Based on studies they've conducted, reducing your amount of sleep by just a few hours per night can affect the body in a number of ways. Below are results they cited during their research.

- **Obesity**—Several studies have linked insufficient sleep and weight gain. For example, one study found that people who slept fewer than six hours per night on a regular basis were much more likely to have excess body weight, while people who slept an average of eight hours per night had the lowest relative body fat of the study group.
- **Diabetes**—Studies have shown that people who reported sleeping fewer than five hours per night had a greatly increased risk of having or developing type 2 diabetes.
- **Cardiovascular disease and hypertension**—A recent study found that even modestly reduced sleep (six to seven hours per night) was associated with a greatly increased risk of coronary artery calcification, a predictor of future myocardial infarction (heart attack) and death due to heart disease.
- **Immune function**—Sleep deprivation increases the levels of many inflammatory mediators, and infections in turn affect the amount and patterns of sleep.
- **Common Cold** – In a recent study, people who averaged less than seven hours of sleep a night were about three times more likely to develop cold symptoms than study volunteers who got eight or more hours of sleep when exposed to the cold-causing rhinovirus.

More on the Harvard Sleep Studies can be found on their website.
healthysleep.med.harvard.edu/need-sleep/whats-in-it-for-you/health

As you can probably imagine, an increase in health issues also means an increase in healthcare costs and an individual's productivity. Data from three separate studies even suggests that sleeping five or fewer hours per night may increase mortality risk by as much as 15 percent.

So, what exactly is the right temperature for a good night's sleep? According to Dr. Walker, the body's core temperature needs to drop by two or three degrees to initiate sleep. "If our core temperature is too high the brain cannot easily make the switch from being awake to being asleep, or create the best quality sleep."

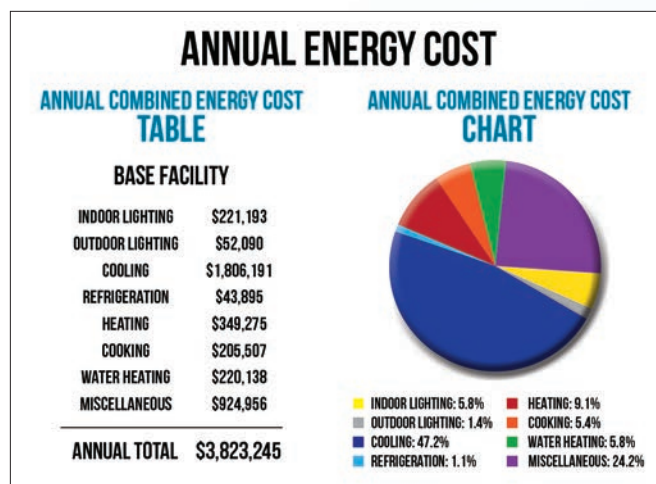
That means that if you keep your house at 70°F or 72°F, you need to drop the temperature in the evenings. According to studies, 65°F is optimal, with temperatures as low as 60.8°F if you like to cuddle up under layers of blankets. That would mean a difference of anywhere between five and ten degrees, and depending on where you live and the season, that can make for an expensive proposition.

According to estimates³, a 1°F change on your thermostat can mean as much as a 3% increase in your bill. That means if your bill is normally \$50 then a 10°F change could raise your bill to as high as \$65. That may not seem like a tremendous change for your home, but it can add up quickly if you're trying to adjust the temperature inside of a larger structure, like a hospital.

If you were to consider a theoretical hospital wing of 300,000 sqft similar to the one that just opened at Ball Memorial Hospital in Muncie, IN, you may be surprised by the amount spent to keep the lights on. Power provider ConEdison has created a tool to allow you to estimate energy costs based on a number of criteria including building type, age, size, and needs. Below is a chart that estimates energy costs for one year of service for such a facility.

These costs are based on an average heating temperature of 70°F and cooling temperature of 72°F. Estimating an increase in cost when changing the temperature from 72°F to 6°F is difficult, because such a change would only happen in the evenings, and in most cases, only in certain portions of the hospital. However, if all things were equal, such a change would cost this facility an additional \$400,000 in cooling costs. After about \$50,000 in savings on the heating bill, the hospital would see a \$350,000 annual increase in energy costs.

Another energy provider has published a number of recommendations to help hospitals recoup some of their energy costs. According to research conducted by NationalGrid, lighting, heating, and hot water represent between 61 and 79 percent of total energy usage in a hospital, depending on climate. They've targeted those systems and put together a list of ways to save money in each. On the following page are a number of the recommendations that they've made across a variety of categories.



Quick Fixes:

Power down computers | The typical desktop computer, monitor, and shared printer draw about 200 watts, with the monitor alone drawing about 100 watts. “Smart” power strips with built-in occupancy sensors are available to shut off plugged-in devices like printers and monitors when no users are present.

Lights | Occupancy sensors can help, but a less expensive alternative is to train staff to turn off lights when they leave unoccupied rooms.

AC Units | Consider powering down air conditioning units in areas of the hospital that are empty or closed during evening hours like cafeterias and empty office space.

Long Term Solutions:

Commissioning | Have engineers observe your hospital and perform a ‘tune-up’ to maximize system operations and efficiency. Studies have shown that continuously monitoring a building’s energy systems can lead to reductions of 10 to 15 percent in annual energy bills. Savings typically result from resetting existing controls to reduce HVAC waste while maintaining or even increasing comfort levels for occupants.

Make some upgrades | If your facility uses T12 fluorescent lamps, relamping with modern T8 lamps and electronic ballasts can reduce your lighting energy consumption by 35 percent. Adding specular reflectors, new lenses, and occupancy sensors or timers can double the savings. You could also replace incandescent lamps in many applications with Compact fluorescent lamps (CFLs). This can reduce energy use by two-thirds and save as much as \$20 per lamp per year.

For more ideas on how to reduce energy costs, visit https://www9.nationalgridus.com/non_html/shared_energyeff_hospitals.pdf

While the savings from the above may not offset all additional spend that’s required in order to provide patients with the best possible sleep, taking the steps necessary to manufacture good sleeping weather means providing a healthier environment for patients. At the end of the day, where they lay their heads at night is most important.

D

Sources:

- 1 | wsj.com/articles/the-best-temperature-for-a-good-nights-sleep-1456166563
- 2 | healthysleep.med.harvard.edu/need-sleep/whats-in-it-for-you/health
- 3 | orangecountyacandheating.com/much-cost-increase-heater-one-degree/



Replaceable Sensors Calibration Made Easy

A few years ago, we set out to engineer a way for our customers to calibrate their loggers and recorders, without ever having to send the devices back to us. What we ended up with was Replaceable Sensors.

What are these things?

Replaceable Sensors measure the temperature or humidity of your environment, and then send that signal to your data logger for storage. They are calibrated independently of the device.

What does that mean for you? If you calibrate your data loggers and chart recorders (which you should be doing) it means never, ever having to send your device back in to Dickson for a calibration. Replaceable Sensors take the phrase "down time" out of calibration.

Interested? Visit dicksondata.com/replaceable-sensors to watch a product video, and view products that use Replaceable Sensors.



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