

Data Logging Solutions

*In Accordance with
USDA Regulations and HACCP Compliance
for*
Meat Processors



Table of Contents

About MadgeTech, Inc.

Quality Assurance and HACCP Compliance

MadgeTech Data Loggers

Data Loggers for Meat Processors

MadgeTech 4 Data Logger Software

Contact Information

A stylized world map in light gray on a dark blue background. A yellow star is located in the New England area of North America, with a blue triangular pointer extending from it towards the text box below.

About MadgeTech

MadgeTech, Inc. is a global company based in New England and founded on traditional principles, customer service, quality and trust.

MadgeTech designs, engineers and manufactures all products at the USA headquarters, and distributes around the globe.

MadgeTech is dedicated to providing reliable, cutting edge products at an affordable price with world class customer service.

Quality Assurance and HACCP Compliance

Quality Assurance

- Quality Assurance or QA for short, refers to planned and systematic production processes that provide confidence in a product's suitability for its intended purposes.
- A system in which the delivery of a service or the quality of a product is assessed and compared with that required.
- Confirming the degree of excellence of a product or service, measured against its defined purpose.
- Program that is intended, by its actions, to guarantee a standard level of quality.

7 Principals of HACCP Compliance

(Hazard Analysis and Critical Control Points)

1. Conduct a Hazard Analysis

Identify the potential hazard(s) associated with food production at all stages, from primary production, processing, manufacture and distribution until the point of consumption. Assess the likelihood of occurrence of the hazard(s) and identify measures for their control.

2. Identify the Critical Control Points (CCPs)

Determine the points, procedures, or operational steps that can be controlled to eliminate the hazard(s) or minimize its (*their*) likelihood of occurrence. A “*step*” means any stage in food production and/or manufacture including the receipt and/or production of raw materials, harvesting, transport, formulation, processing, storage, etc.

3. Establish Critical Limit(s)

Establish critical limit(s) which must be met to ensure the CCP is under control.

MadgeTech offers data loggers to enable the user to monitor and record temperature and humidity and other parameters to establish critical limits such as temperature and humidity.

4. Establish Procedures to Monitor Control of the CCP

- A. What will be monitored
- B. How will it be monitored
- C. How often will it be monitored
- D. Who will monitoring

MadgeTech Data Loggers help to ensure critical control limits are being met. They can be used to validate ovens, freezers, refrigerators or be used to monitor the internal temperature of product in process.

7 Principals of HACCP Compliance

(Hazard Analysis and Critical Control Points)

5. Establish Corrective Action Procedures

Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.

6. Establish a Record Keeping System

Establish documentation concerning all procedures and records appropriate to these principles and their application.

The MadgeTech Software makes record keeping a simple task. Easily tailor graphs and create custom reports for the product being processed to help comply with federal guidelines and regulations

7. Establish Verification Procedures

Establish procedures for verification to confirm that the HACCP system is working effectively.

MadgeTech data loggers play a key role in the HACCP plan. MadgeTech offers SOP's (*Standard Operating Procedure's*) to aid the user to ensure the data loggers are installed correctly, operating properly and performing as they should.

MadgeTech Data Loggers

Measurement Methods

Data Loggers for Every Application

- An instrument which records data
 - > Aircraft – ‘Black Box’
 - > Tape recorder
 - > Electricity meter
- Strip Chart Recorder
 - > Device relying on moving parts
 - > Prone to mechanical failure
- Thermometer
 - > Relies on employee diligence
- Data Loggers
 - > Modern electronic recorder
 - > No moving parts
 - > Electronic precision



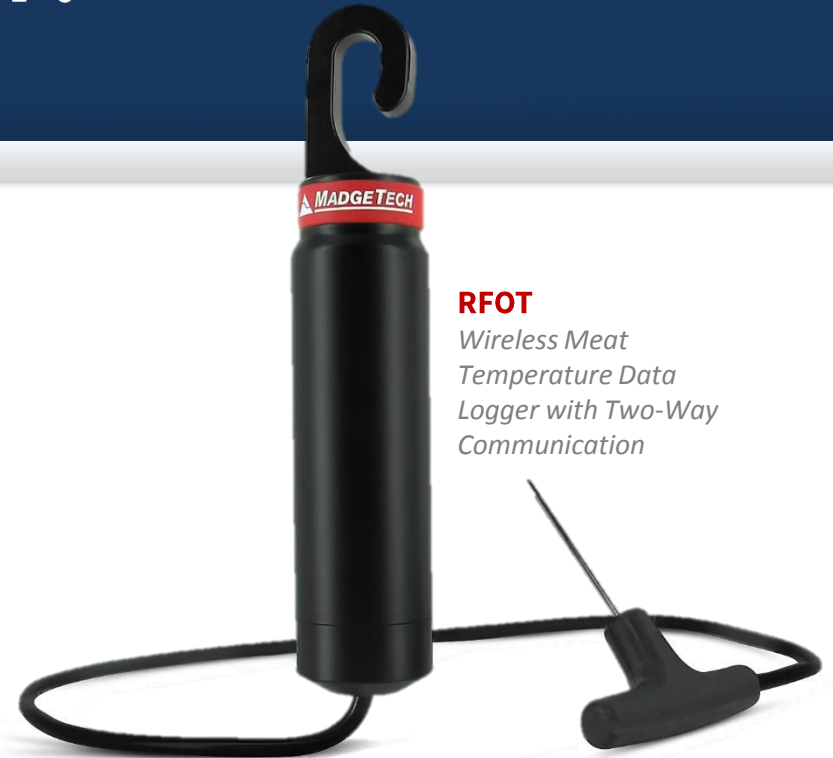
RFOT
*Wireless Meat
Temperature Data
Logger with Two-Way
Communication*



RFTemp2000A
*Wireless Temperature
Data Logger with LCD Screen*

What is a Data Logger?

Recording Data



RFOT

*Wireless Meat
Temperature Data
Logger with Two-Way
Communication*

- An electronic instrument.
- Records environmental data such as temperature or humidity over a period of time at user specified intervals.
- Each reading is date and time stamped.
- Data is available in graphical and tabular formats for validation and analysis.

Providing Tools

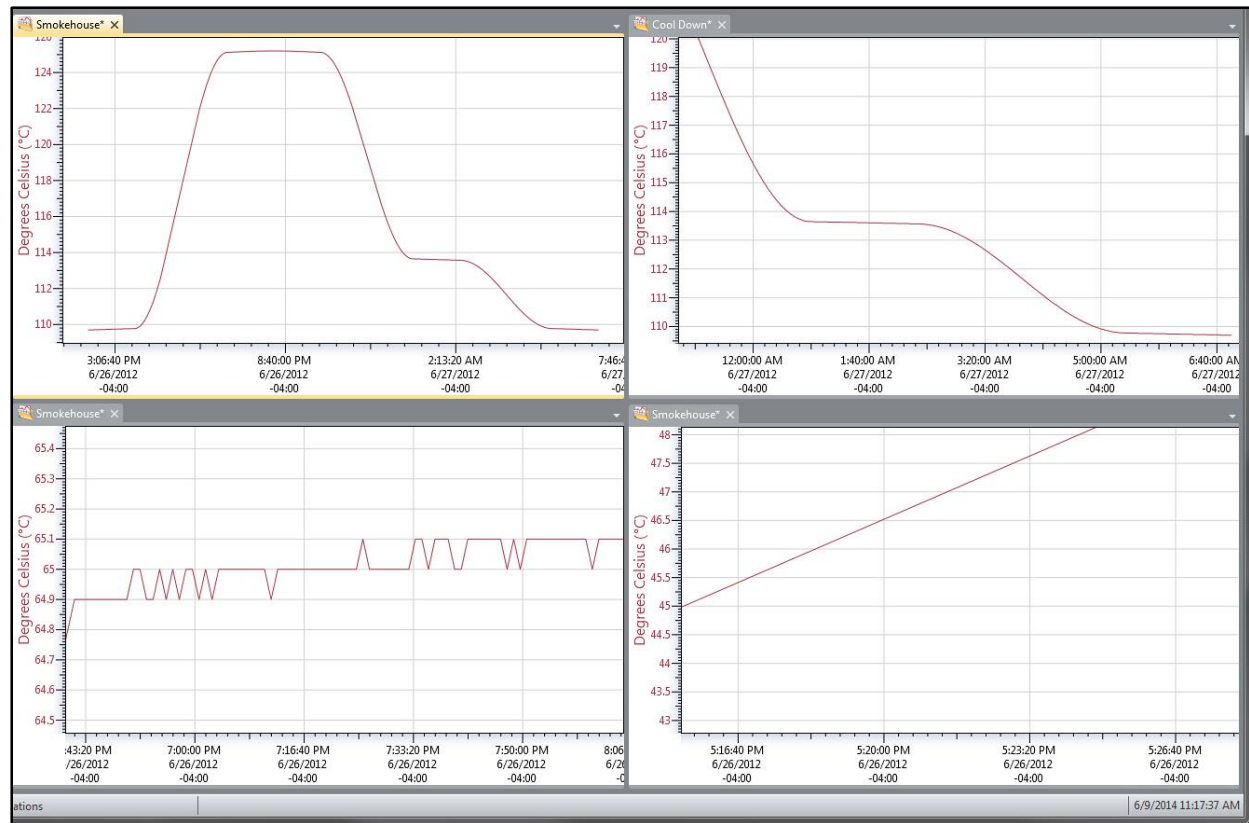
Verify and Validate

Verify

- Find out what happens over time

Validate

- Verify the Process



Data Logger Systems

Building your Data Logging System



A Data Logger

RFTCTemp2000A
Wireless Thermocouple
Temperature Data Logger

MadgeTech Software

MadgeTech 4 Software
Free Standard Software available or Secure
Software available for purchase

Transceiver & USB Cable

RFC1000 Wireless Transceiver
With USB Cable & Power Adapter

How Data Loggers Work

Building your Data Logging System



- **Configure**

- > Choose desired start, stop, alarm settings and more through the MadgeTech Software

- **Deploy**

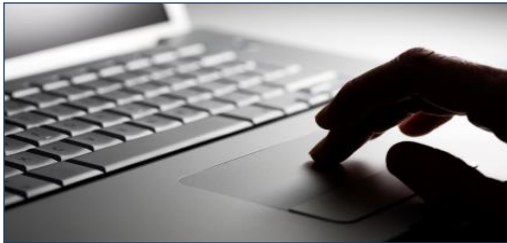
- > Start the data logger

- **Retrieve**

- > Collect data either by downloading the data manually or in real time with wireless data loggers

How Data Loggers Work

Configure, Deploy and Retrieve



1. Configure

User assigns a '*mission*' to the data logger through a PC.

- Reading rate
- Start time
- Calibration data
- Identity tag
- Wireless alarming



2. Deploy

- Data logger is placed where monitoring is needed
- No wires – completely self-sufficient
- Different enclosures for various applications
- Real time wireless options are available



3. Retrieve

- User downloads information from logger
- Software automatically presents data in graphical and tabular formats
- Verify USDA regulations and provide HACCP documentation

Benefits of Data Loggers

Advantages of Utilizing Data Loggers



- Monitor for temperature fluctuations
- Records of out of range data
- Audit trail for QC
- Aid with HACCP
- Evidence of HACCP compliance for inspectors
- Portable, Remote, Battery Operated
- Easy Installation
- Validation system for entire process.
- Wireless Value:
 - > Real time wireless data always available
 - > Real time wireless alarming available by on screen notification, e-mail or text message.

Data Loggers for Meat Processes

Data Loggers for Meat Processes

Diverse Type of Data Loggers for Every Application

Data loggers are easy and efficient tools to measure and record environmental conditions throughout meat processes.



RFOT

Wireless Data Loggers



HiTemp140

High Temperature Data Loggers



RFTCTemp2000A

Digital Data Loggers

Data Loggers

What MadgeTech Data Loggers Record

MadgeTech Data Loggers come in a variety of styles and record a wide range of parameters:

- Temperature
- Humidity
- Pressure
- Motion
- Pulse/Event/State
- pH
- Shock
- Current/Voltage
- Water Level
- Wind
- Bridge/Strain
- Carbon Dioxide
- And more...



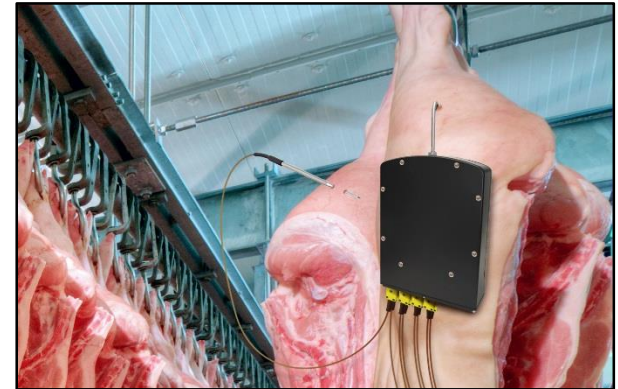
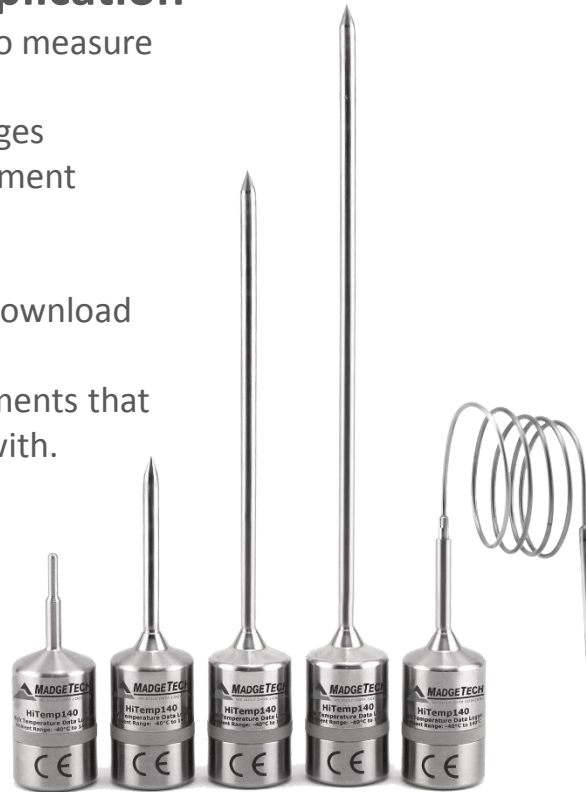
Assessing Logger Needs

How to Select the Proper Data Logger

Analyze the Application

- What parameter to measure and where
- Measurement ranges
- Operating environment
- Duration of test
- Accuracy
- Real time verses Download

Federal/State requirements that need to be complied with.



Smokehouse Monitoring

Temperature Management



Cooking Internal Temperatures

- Meat piercing probe is needed
- Thermocouple or RTD
- Wireless or standalone
 - > Wireless Provides real time data



Cool Down Period

- Address USDA appendix A and B

Oven Monitoring

Temperature Profiling & Management

Analyze the Application

- Where is the oven that needs monitoring
- At what intervals
- Wireless or standalone
- Real time or after a download
- Measurement ranges to be recorded



HiTemp140



RFTCTemp2000A

ThermoVault



TC101A

Meat Storage

Temperature Management

MadgeTech data loggers can monitor temperature levels and humidity levels for a variety of storage needs:

- Refrigerators
- Freezers/Coolers
- Storage units
- Processing areas



Temp101A
Temperature
Data Logger



RFOT



RHTemp101A
Temperature & Humidity
Data Logger

Meat Storage

Temperature Management with Wireless Data Loggers

- Wireless data loggers are efficient for monitoring the cooking and storing of meat.
- Wireless data loggers measure and record data.
- Wireless data loggers transmit the data back to a central computer.
- Real-time monitoring is achieved.
- Wireless alarming is also available.



RFOT

*Wireless Meat
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RFRHTemp2000A

*Wireless Temperature & Humidity
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Meat Shipping

Temperature Management during Shipping

Data Loggers are ideal for validating that product quality is being maintained as it is shipped from one location to another.

To use, simply activate the logger, put it in the shipping container, and ship.



TransiTempII

Temperature Data Logger for monitoring during shipments.

TransiTempII-RH

Temperature & Humidity Data Logger for monitoring during shipments.



TransiTempII

Temperature Management during Shipping

The TransiTempII and TransiTempII-RH models are designed for monitoring the shipment of goods, validating that they were either transported correctly or compromised.

- Instant out of range notification
- LED alarms
- Save time and money
- Ensure the product quality
- Easy and effective way to monitor shipments

Red LED

Refuse shipment, shipment has been compromised

Yellow LED

Shipment is in danger of being compromised

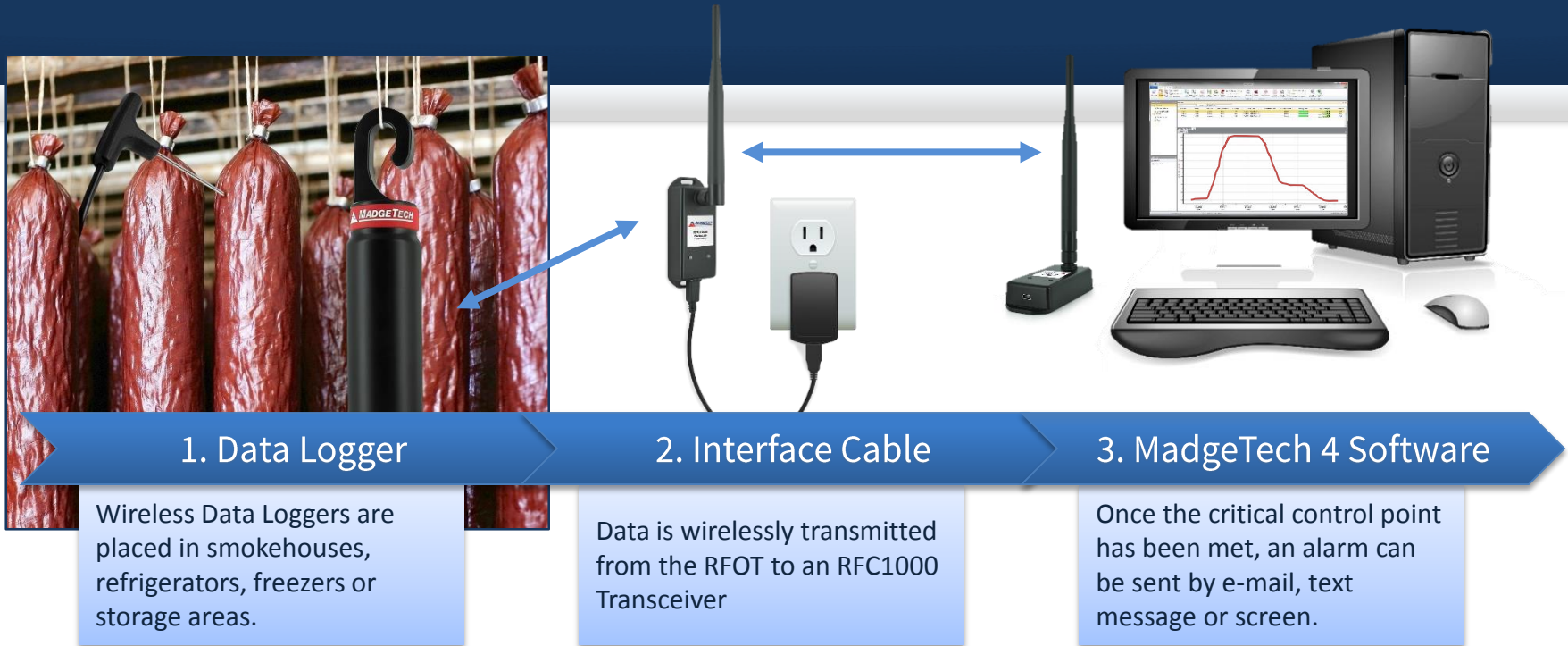
Green LED

Shipment is safe to accept and was shipped within the correct temperature range.



Verify & Validate

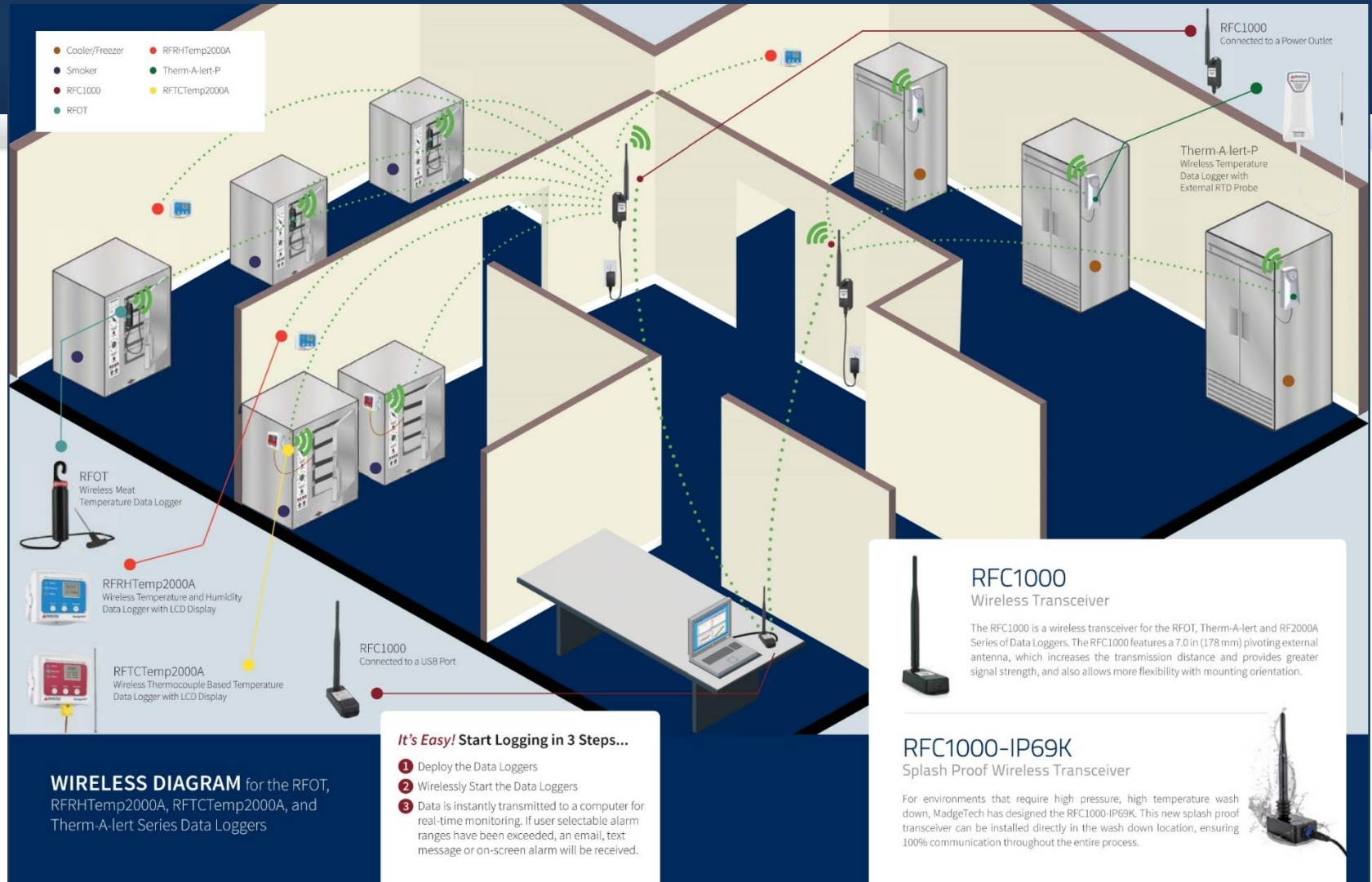
Wireless Meat Temperature Validation



Wireless Features

- Aids in Compliance with USDA Appendix A & B
- Archive Data for Record Keeping and Audits
- E-mail, Text and On Screen Alarms
- RFOT Operates from -20 °C to 100 °C (-4 °F to 212 °F)
- Splash proof – Withstands wash down cycles
- View multiple graphs in the software for various locations
- Multiple probe lengths available, for most any size meat product

Wireless Alarming Diagram

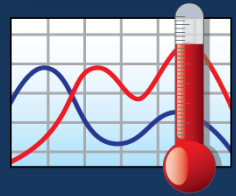
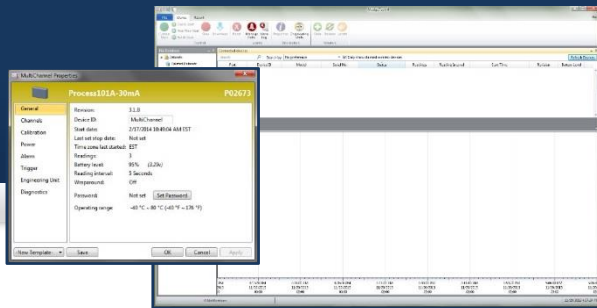


MadgeTech 4 Data Logger Software

Data Logger Software

MadgeTech 4 Software

When it comes time to analyze data, most data logger companies also provide a software package to review and document the data collected.



Powerful Data Analysis

- Customizable Reports:
 - > Graph
 - > Tabular Data
 - > Reports
- Annotate data points on the graph or tabular data.
- Statistics include minimum, maximum, average, time above temperature & more.

User Friendly

- Immediate device status information
- Digital calibration
- Automatic data saving
- Export to Excel®

Software Features

MadgeTech Software Features Addresses Compliance Regulations

MadgeTech is proud to be a provider to help maintain a system to validate and verify information that customers need to comply with both USDA Regulations and HACCP Documentation.



Address FSIS – Appendix A

“Meeting Lethality Performance Standards”

MadgeTech’s software automatically calculates the kill factor in PU (Pasteurization Units).

A PU is calculated based on 1 minute at 60°C, but the user has the ability to change the reference temperature and Z-value to determine the kill factor for other product such as beef and poultry. The data is provided on the summary tab for instant validation.

Software Features

- FSIS-Appendix A, Meeting Lethality Performance Standards

RFOT* X											
Serial	Channel	Point Count	Maximum	Minimum	Average	Duration	Standard Deviation	Pasteurization	A0	F0	+
A00004	Temperature	1000	65.10 °C	24.90 °C	42.28 °C	16:39:00	15.848 °C	1258.23046641566 PU	0 minutes	0 minutes	

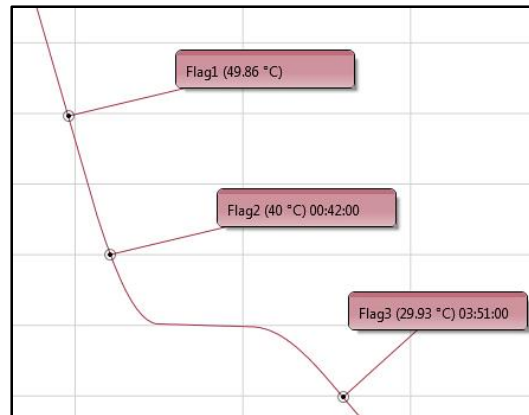
Statistics for the current report can show multiple options such as pasteurization and sterilization.

Address FSIS – Appendix B

“Cooling Heat-Treated Meat & Poultry Products”

The MadgeTech software allows you to configure multiple cooling flag points.

Each point is clearly marked on the graph by a flag and the summary provides the temperature, time elapsed and rate of cool down in degrees per minute. Instant access to this information makes record keeping and report generation quick and simple.



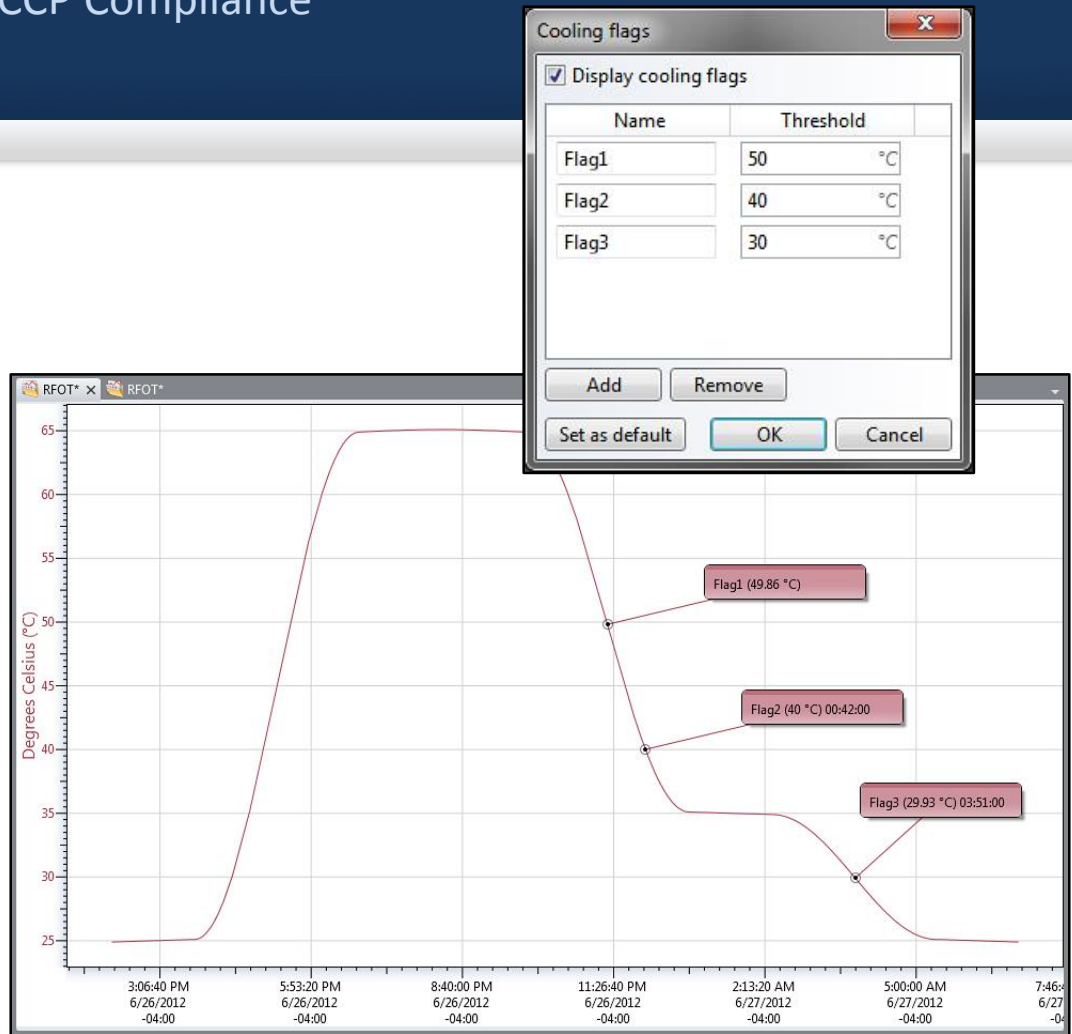
Name	Threshold
Flag1	50 °C
Flag2	40 °C
Flag3	30 °C

MadgeTech 4 Software Features

Cooling Flags to Support HACCP Compliance

HACCP Cooling Flags

- A useful feature found in some of the more advanced software systems.
- Satisfies HACCP Requirements.
- Specialized data logging software allows the input of Critical Control Points (CCP).
- Each CCP is automatically marked on the graph and additional information such as time elapsed and rate of cool down can be obtained.
- This feature provides instant visual verification as to whether the critical control points have been met.



Data Loggers

MadgeTech Industry Experts in the Data Logging World

MadgeTech focuses on meeting the customers needs and understands the pressure of the meat and food industry. With friendly, knowledgeable sales staff, MadgeTech strives to be the best in the Data Logger business.

- Data loggers efficiently expedite meat quality validation processes
- Validate cooking, shipping and storing parameters
- Saves time
- Aids in complying with USDA regulations and HACCP documentation



MadgeTech Customer Support



MadgeTech data loggers come with a one year manufacturers warranty.

Free support available for the lifetime of the product.

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