



# KELSIUS

## Food Retail

### Digital HACCP & Wireless Temperature Monitoring





KELSIUS

# Company Story

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Kelsius are one of Europe's leading manufacturers and providers of Wireless Temperature Monitoring systems and Digital HACCP systems and we take pride in working with Worcestershire Regulatory Services in a Primary Authority Partnership.

Founded in 2003, Kelsius is a technology company that has a strong market presence in Ireland and the UK and exports their products and services to over 50 countries across the globe.

Our customers range from pharmaceutical manufacturers, hospital pharmacies, laboratories and blood science departments, life science facilities and vaccination centres.

We are committed to continuous innovation and our systems utilise the latest technologies to provide peace of mind and easy-to-use systems to our customers.

Kelsius prides itself in providing unrivalled customer support. Based in Kelsius headquarters, customer support works closely with technical and delivery teams to understand and serve customers' needs to the highest standards.



**Our Mission:**  
To make the world  
safer for consumers  
of food and  
medicine.

ISO9001:2015 Accredited

ISO14001:2015 Accredited

ISO 27001 compliance through our partners AWS

Kelsius system complies with FDA 21 CFR Part 11 regulations

# Sustainability

## Our Commitment

We are committed to improving global sustainability by focusing on four principles.

**Remove  
Paper**



**Reduce  
Waste**



**Protect  
Stock**



**Save  
Energy**



### EcoVadis - Sustainability Bronze Medal Certificate

Kelsius has been rated amongst the top 35% of companies assessed by Ecovadis. The rating was achieved based on EcoVadis' evidence-based assessment of Kelsius in relation to its sustainability impacts.



# Our Solutions

## **Reduce Food Waste**

Every year, the billions of tonnes of food products that go to waste directly contribute to generating 8-10% of associated global greenhouse gas emissions. The vast majority of this waste is due to lack of cold chain traceability or incorrect storage temperatures.

Reliable temperature monitoring ensures storage units and stock are consistently kept at optimal temperatures removing the risk of stock being spoiled. This prevents large amounts of unnecessary food waste and the CO<sub>2</sub> emissions that come from that waste.

## **Reduce Paper Usage, Paper Waste and Paper Storage**

The average small-medium business must have on average 10,000 sheets of paper available annually to conduct manual temperature monitoring, with each sheet taking 6-9 years to decompose.

Our systems remove the need for manual paper records therefore significantly reducing a company's paper and ink cartridge waste.

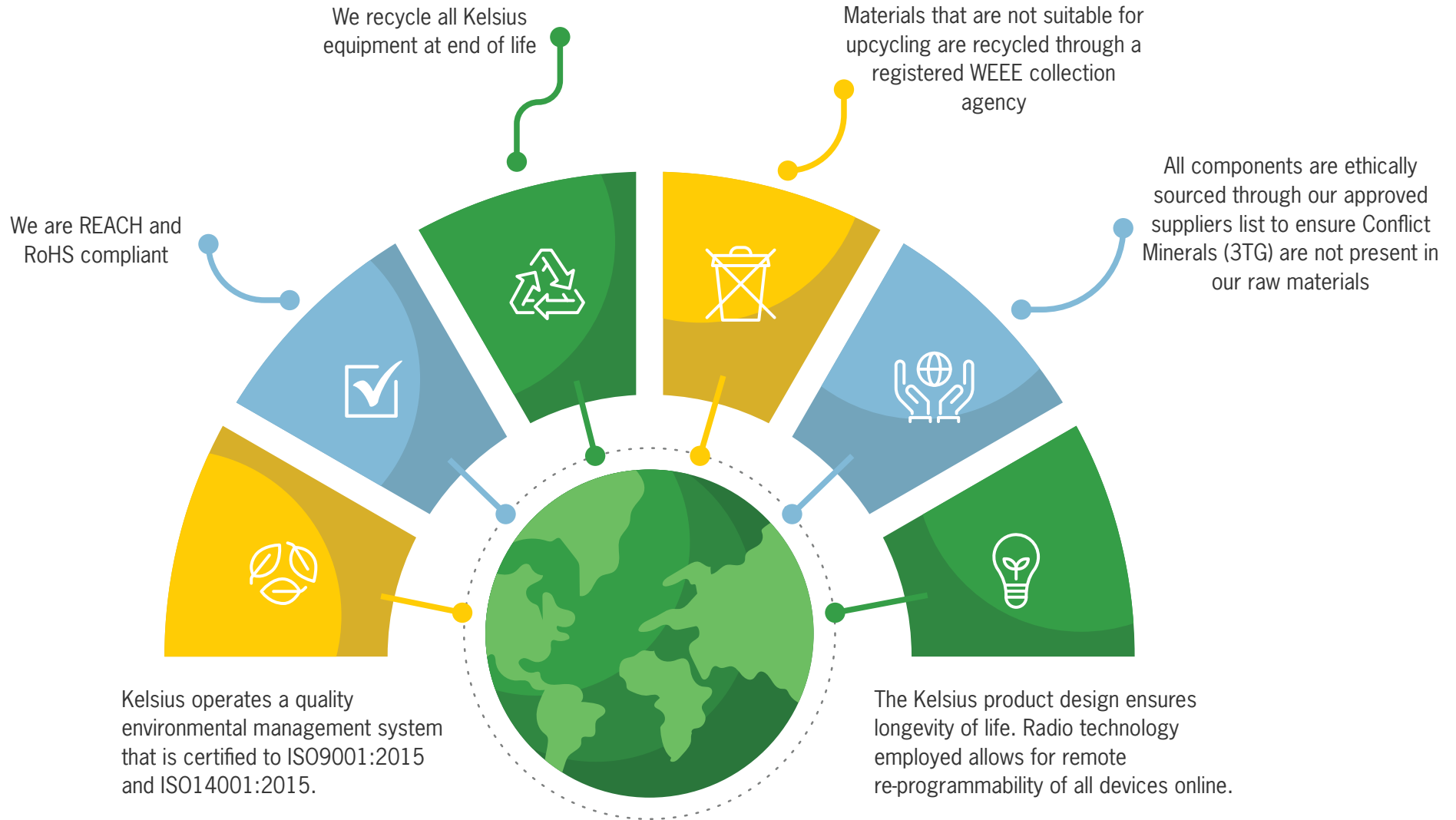
## **Save Energy**

As well as using valuable resources such as land and water, the growing, processing and transportation of food that ends up as waste each year also uses significant amounts of energy.

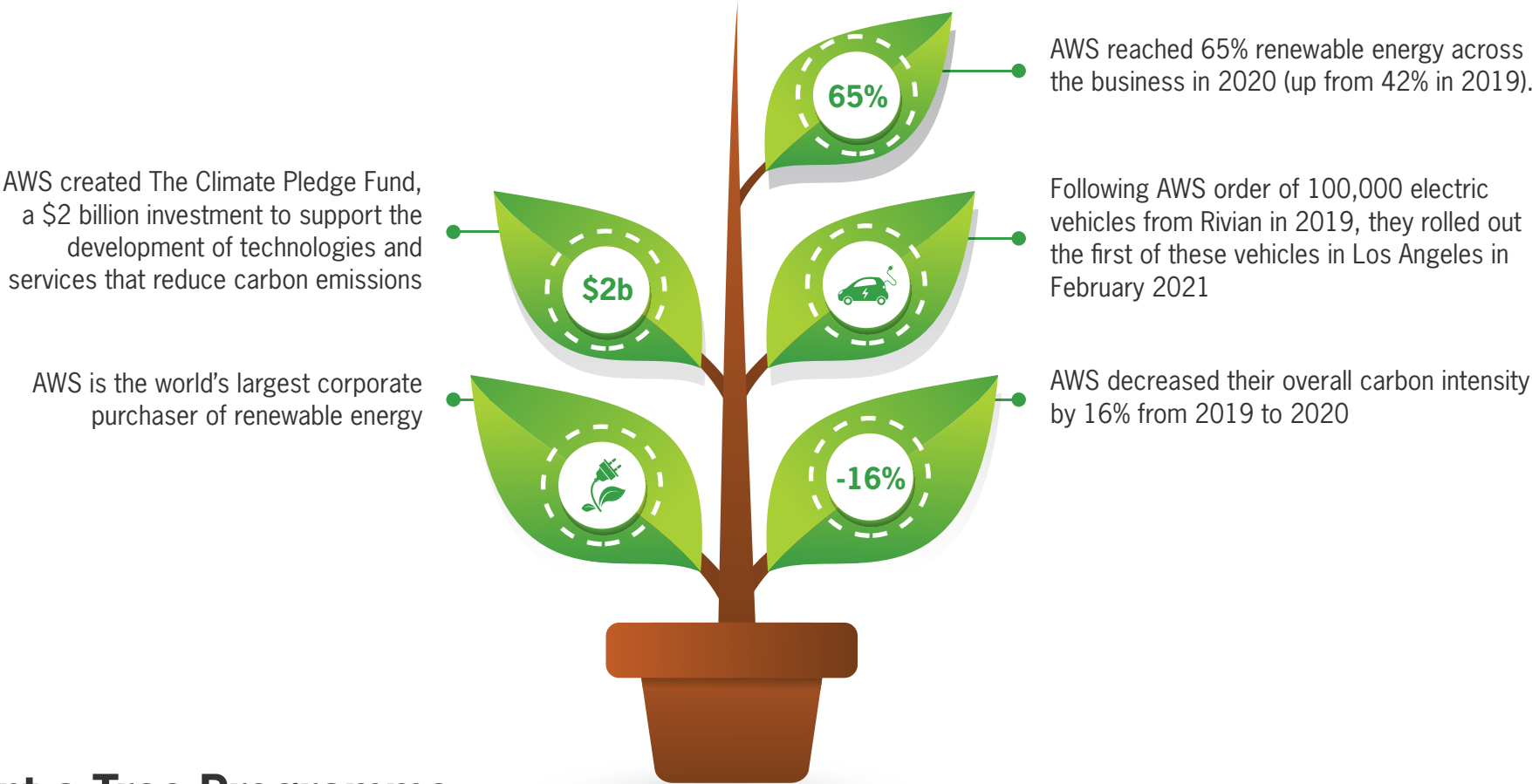
By reducing the amount of unused food, the Kelsius system ensures that this energy does not go to waste. The temperature monitoring system also allows for constant monitoring of your fridges, freezers and chill and cold stores, allowing you to ensure that temperatures are set at optimum levels to ensure your units are operating at the most efficient energy levels.

# Our Contribution

**Our contribution and responsibility is to reduce emissions and environmental impact across our operations.**



**With the requirement to maintain records for up to 30 years, data storage is a large and important part of our business. We chose Amazon Web Services (AWS) as data storage partner as a result of AWS' focus on Sustainability.**



### **Plant a Tree Programme**

Reducing global paper usage and waste is one of our main objectives as a company and to enhance this, we have decided to plant a tree for every new customer that comes on board. Trees remove carbon dioxide from the atmosphere, produce oxygen and support the building of biodiversity, so together we will be directly contributing to improving the environment.

# Security



## Security & Compliance with Kelsius

### Your Data and Privacy are Protected and Secured

Kelsius develop secure software design practices that include defining security requirements, threat modelling, code reviews, vulnerability management, incident resolution management and security testing. There are controls in place to validate/reject access to the customer portals including multi-factor authentication, roles and permissions.

- GDPR Compliant
- Data processed and stored in the EU
- Data encrypted at rest (data storage) and in transit (data transfer)

### Information is readily available

Daily and incremental backups allow data to be restored to any 5-minute period between backups. Data archived for more than 13 months can be restored from the portal at any time for audits of historical data and there is data retention for 30+ years. There's also an automated disaster recovery plan in place to ensure maximum uptime across 3 geographically dispersed data centre locations within Ireland.

- 24/7/365
- Alerts via push notifications/email/voice calls
- Self-healing data storage
- Automated crash recovery over multiple data centres



## **You are compliant**

Kelsius complies with FDA 21 CFR Part 11 regulations – ISO 27001 compliance (AWS). A complete audit trail is available including user activity and change management audit records. There are multiple user roles to customise and control access to data and system configurations, and strong data governance where data is only accessible by the customer and a controlled small number of Kelsius employees.

Strong password policy is enforced and multifactor authentication is used to access the customer portal.



System Main Menu

- Delivery
- Cook & Cool
- Tasks
- Traceability
- HACCP Checks
- TRAINING

9/04/23 5:27:43 CHANS 1 AlienPKT (064716)

**CRITICAL** E TZ

MainsPower	15:24,19	CRITICAL	OFF
322703p1	T 14:43,19	CRITICAL	25.5C
336106p1	T 15:21,19	CRITICAL	25.1C
22704p1	T 14:51,19	CRITICAL	25.3C
22705p1	T 15:13,19	CRITICAL	25.2C
22708p1	T 15:24,19	CRITICAL	25.1C
ppVoltsV	06:31,28	NORMAL	3.9V

16:38 Alert Events (55)

- Select All
- WARNING** 35.20°C K201 TestNC SiteMap2 30-04-2024 14:34:25
- WARNING** 35.10°C K201 TestNC SiteMap2 01-05-2024 13:20:00
- WARNING** 35.10°C K201 TestNC SiteMap2 02-05-2024 13:20:29
- CRITICAL** 14.90°C K201 TestNC SiteMap2 07-05-2024 03:32:11
- CRITICAL** 14.90°C K201 TestNC SiteMap2 07-05-2024 03:47:27
- CRITICAL** 38.70°C K201 TestNC tempSwap1 01-05-2024 12:27:13
- CRITICAL** 25.20°C K201 TestNC tempSwap1 07-05-2024 11:11:34

Corrective Action

**KELSIUS**  
Wireless Temperature Sensor

33087E

**KELSIUS**  
AMPLIFIED WIRELESS REPEATER

Thermopart

73.0°C



Ham & Cheese  
Panini

# Industry Challenges



**Food Retailing is a highly regulated and complex environment that presents quality, compliance, supply chain, environmental and labour challenges on a daily basis.**

- Maintaining a manual paper HACCP system means that staff members spend a lot of time on paperwork and manual temperature checks instead of serving the customer.
- Staff time is taken up with repetitive tasks such as manual recording of fridge/freezer temperatures. The average business spends 2-4 hours per day on such tasks.
- Manual HACCP records are open to falsification, difficult to manage and access for auditing, and require costly storage for up to 7 years.
- Missing records can lead to audit failure.
- Failure to comply with food hygiene regulations can lead to food poisoning, loss of reputation, brand damage, legal costs, increased insurance premiums, fines and even closure.

- Traceability and allergen management continue to pose significant risks and challenges to PPDS and food to go retailers.
- Temperature excursions on freezers and fridges can lead to poor quality food produce being served to your customers.
- Stock loss due to freezer/chill failures can lead to substantial financial loss.
- Undetected fridge/freezers breaking down or doors left open can lead to substantial loss of valuable product.
- Loss of key food safety personnel due to vacation/sickness/resignation etc. can seriously disrupt your Food Safety Management System, and makes it difficult to manage Food Safety in their absence.
- Calibration of fridge and freezer sensors are expensive and certificates need to be available for audits.

Any of these serious failures can lead to claims of poor corporate governance and even personal liability claims on senior managers or board of directors.

# The Solution

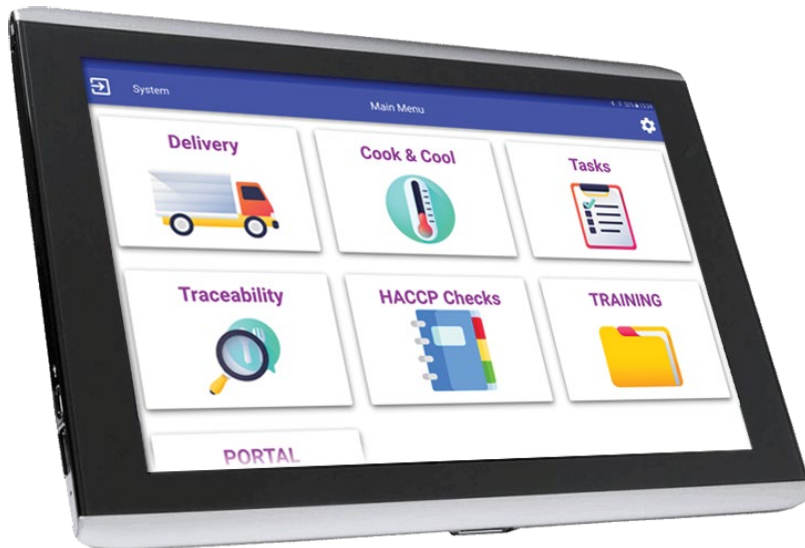


**FoodCheck 2.0 ensures tamperproof, HACCP compliance and by using the best available technology that delivers good corporate governance and improved risk mitigation.**

- FoodCheck 2.0 ensures compliance with all aspects of Food Hygiene Regulations and eliminates the risk of fines, potential closure and loss of reputation when used properly.
- The automated sensors record the temperature in each chill or freezer unit every 30 minutes, eliminating the need for manual temperature recording. This can save 2-4 hours per day depending on the size of your operation.
- 24/7 monitoring via local A/V alarm, Kelsius App push notification, email and voice call can be set up to warn key staff of temperature excursions, power outages or doors left open to avoid any expensive stock loss and disruption to operations.
- FoodCheck 2.0 eliminates all paper from your HACCP and operations removing the cost of paper, ink, paper storage, staff time, printing, distributing and filing of paperwork.
- FoodCheck 2.0's automated reminders for hot temperature check and daily tasks will ensure HACCP is being implemented.
- Real time reporting gives management team visibility of task completion as they happen, maintaining food quality and standards.
- Production traceability with allergen management system ensures that you can protect your business and your customer.
- FoodCheck 2.0 simplifies EHO audits and inspections with all records, current and historical, available from any web-enabled device.
- FoodCheck 2.0's powerful search allows you to track by batch code, product, invoice number or task completed at every critical control point of the HACCP process.
- FoodCheck 2.0 is easy to use, intuitive and ensures that essential food safety records are maintained even when key staff are on leave or when new inexperienced staff are behind the counter.
- Annual calibration is included as part of the FoodCheck 2.0 agreement which avoids worrying about the cost of annual calibration or missing calibration records, and ensures that you have all data required for your food safety inspections.
- The system allows you to record evidence of food waste disposal and quickly and easily create a report on how the waste disposal process is managed.

## The FoodCheck 2.0 Digital HACCP System

- Robust & Reliable Samsung Tablets with Protective Case, Holder and Wall mounted Bracket.
- Bluetooth Probes which communicate directly with the FoodCheck 2.0 App.
- Bluetooth Label Printer allowing for the Printing of Labels directly from FoodCheck 2.0.
- Flexible & wireless sensor network that supports both large and small environments.



- Easy-to-use, non-disruptive deployment—no need for expensive hard-wired infrastructure.
- Cost-effective, automated record keeping eliminates manual checks and records.
- Secure, centralised, encrypted data keeps your records safe.
- Global access to information when and where you need it— by sensor, by room, by facility.
- Real-time alarming and alerting for temperature compliance and product quality assurance.
- Improved visibility and compliance through online data history and audit trail.

### Lifetime Warranty

Eliminate system redundancy and end of life re-purchase costs. All Kelsius manufactured equipment including sensors, repeaters and network controllers come with a lifetime warranty during the term of your agreement. Items will be replaced with like-for-like or an upgraded version where an older part has been made redundant. New parts are manufactured to be backwards compatible with the existing system and software.

## Push Notification Alerts

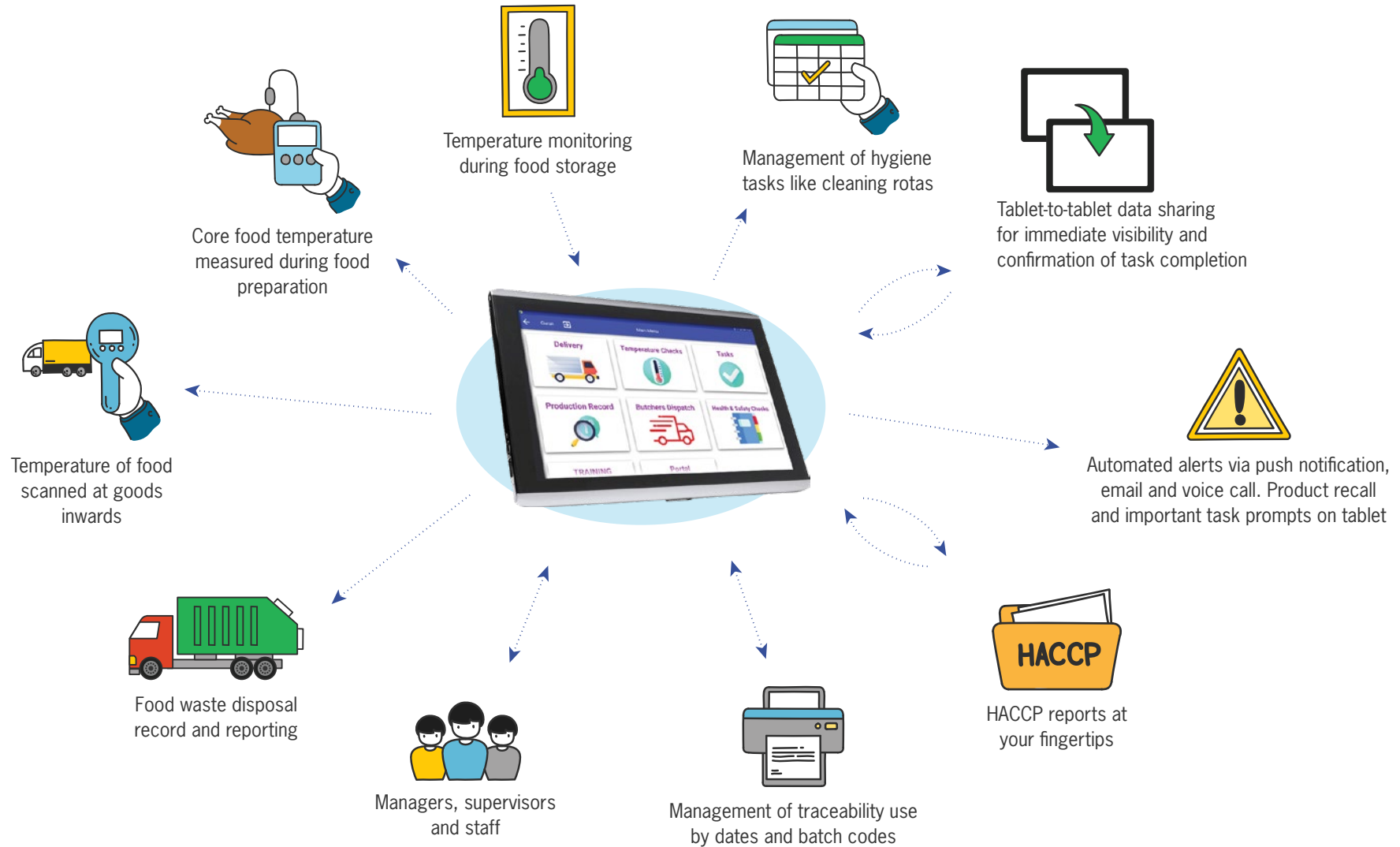
Push notifications are a secure and reliable alternative to SMS or voice call alerts. Mobile phone network operators are increasingly treating automated SMS and automated voice calls as spam. This can result in the non-delivery of messages and in turn risks the user not receiving critical alerts of temperature excursions that could affect food quality and safety.

Push notifications are delivered via the Kelsius App and have multiple benefits for food professionals:

- **Encryption and Security:** The app uses more robust encryption protocols, providing a secure way to transmit information. This ensures that messages are less susceptible to interception, being isolated or not delivered, and are delivered in a reliable, consistent and dependable manner.
- **Two-Factor Authentication (2FA):** The app supports two-factor authentication, adding an extra layer of security. Users can receive secure authentication codes directly through the app, enhancing the overall security of the communication.
- **Delivery Confirmation:** The app provides delivery confirmation, letting users know when a message has been successfully delivered and when it has been read. This feature enhances reliability and helps users ensure that their messages reach the intended recipients.
- **Offline Message Delivery:** Push notifications are designed to be more reliable in delivering messages even when the recipient is offline. In addition, the app can store notifications until the user is back online, ensuring that important messages are not missed.
- **Remote Functionality:** Remote features include:
  - Secure login from any mobile device
  - Ability to select any individual alert event by entering a PIN
  - Ability to enter a predefined or custom corrective action
  - Ability to close the alert event without going back to office or a central location
  - App will report if alert notification was delivered, if it was opened and if it was actioned
  - All actions recorded and viewed on portal audit section  
Provides improved traceability, convenience and saves time

# FoodCheck 2.0

Complete Food Safety Control



# FoodCheck 2.0 Monitoring System at work:

FoodCheck 2.0 Digital HACCP system removes paper from your HACCP operation. The system is specifically designed to automate and speed up many laborious tasks and checks, saving you and your staff time.

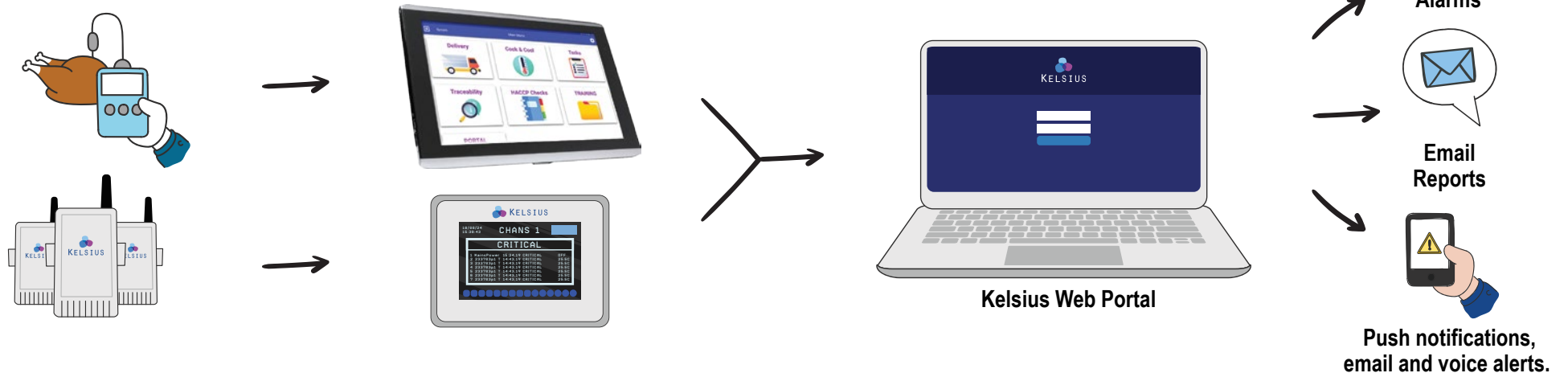
A Bluetooth Probe will electronically transmit the temperature of product to the App with specially designed modules for each type of check you need to complete.

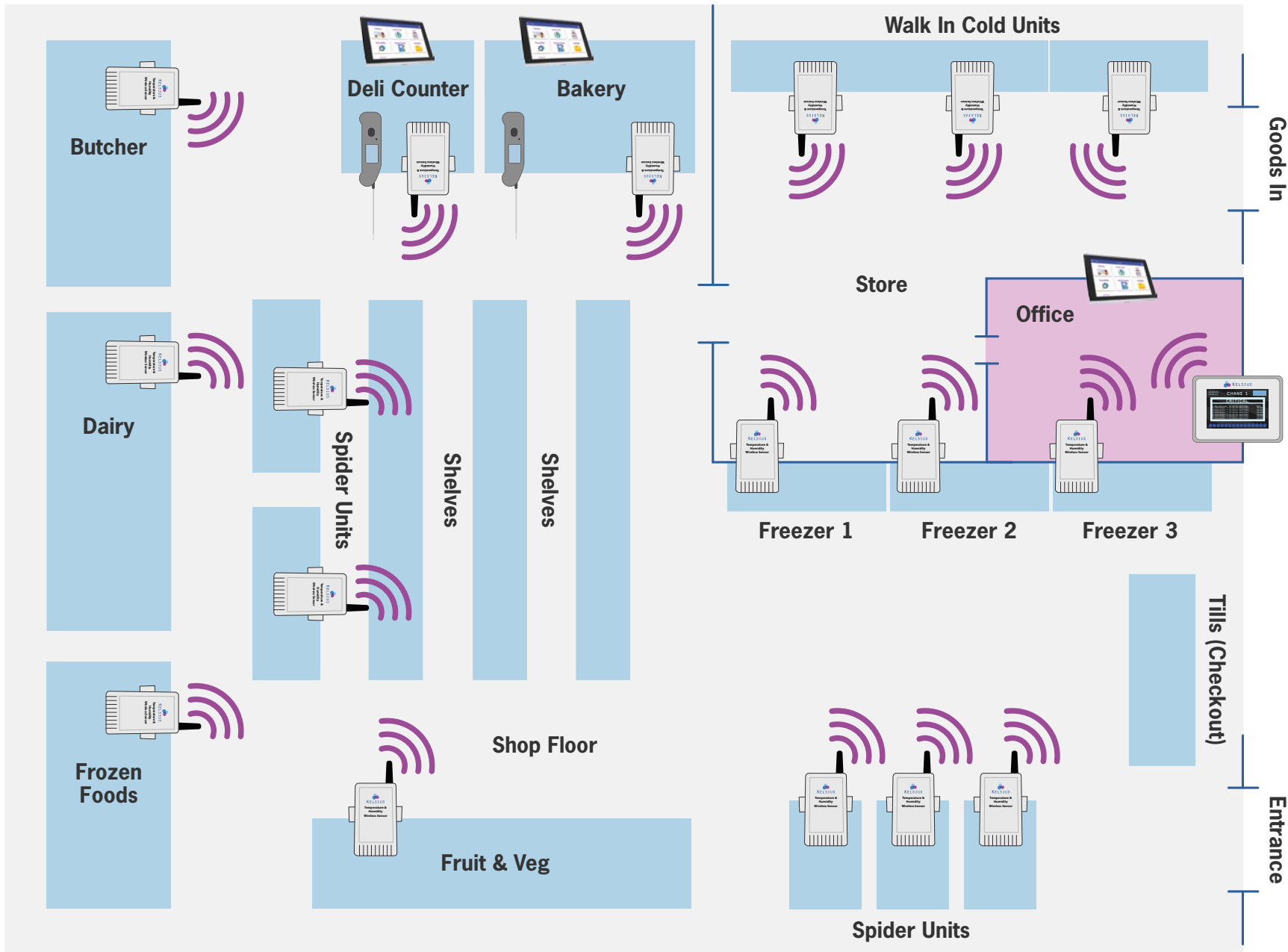
Traceability Module is designed to manage the shelf life of your products with built in reminders to discard product once it is out of date. Labels can be printed directly from the FoodCheck 2.0 App. Allergens can be highlighted on the labels.

Cleaning Tasks lists are automated and scheduled in line with you specific needs and requirements.

FoodCheck 2.0 is a fully integrated solution for temperature monitoring which combines wireless sensors which are linked to their own network and web portal.

Wireless sensors are configured with user-defined alarm thresholds and measurement intervals. They are strategically placed inside any number of storage areas to record environmental conditions. The sensors record data and transmit the encrypted information wirelessly to a local Network Controller.





Wireless Temperature Sensor



Tablet



Network Controller



Thermapen ONE Blue Thermometer

### Web Portal Reporting Suite delivers:

- Operations leaders use reporting and insights within FoodCheck 2.0 to oversee performance across every site, make data-driven decisions, and prioritise opportunities for improvement.
- Know what's happening across the operation with real-time reporting that drives operational efficiencies.
- Automated reporting and dashboards allow your team to see which tasks and procedures have been completed across the operation, or drill down to reports or submissions at a specific site.
- Automated pdf reports can be set up daily, weekly or monthly.
- All data is time & date stamped with option to add photograph.
- Allows you to see what tasks have been completed, when and by who.
- Freezer/chills/display units/hot holding temp checks & reports.
- Non-conformances highlighted & corrective actions logged.
- Alerts for any fridge or freezer non-conformance or failure.
- Live & historical data available at all times on Web Portal.

## Natasha's Law

Under *Natasha's Law* any business in England, Northern Ireland and Wales that produces food prepacked for direct sale (PPDS) will be required to provide labelling that includes a full ingredients list with emphasised allergen information.

### How can Kelsius help?

Full ingredient label printing is available through the Kelsius web portal where emphasised allergen information can be printed onto labels, ensuring compliance under this legislation and keeping your customers safe.



## Data at your Fingertips

Using FoodCheck 2.0 greatly reduces the risk of record falsification and errors. All data is entered via the FoodCheck 2.0 App and is safely stored on the tablet until it can be transmitted to the Kelsius Web Portal. All information can be viewed locally on the App via the Auditor function.

The portal's dashboard and site map provide immediate visibility of the current state of all monitored locations. The dashboard highlights sensor alerts, while the site map provides an overview of all sensors, current readings and current status, e.g. normal, warning, or critical.

Information is configured to suit your organisation's preferences. Data can be viewed on demand or downloaded for a specified timeframe in multiple formats, for example PDF, .xls, .csv.

Group Usage Reports highlight excellence and non-conformant results across all locations.

The system can alarm on sensor-level readings (i.e. temperature excursions) or system-level issues such as damage to or removal of sensors, power failure, device malfunction, and network connectivity loss.

**Dashboard**  
Site Map  
Sensor Graphs  
Alert Events  
Report Wizard  
Documents and Manuals  
Configuration  
Audit Trail  
User Profile

**Customer Notice**  
Please note: Flashing icons representing outstanding Corrective Actions will appear in the device boxes below for a period of 7 days, after which the icon will no longer appear. All outstanding Corrective Actions are listed as normal in the Alert Events tab. We've introduced this change to greatly enhance the speed at which your Site Map loads.

**Legend:**  
**WARNING** Sensor has been above the Warning threshold for longer than the delay period  
**CRITICAL** Sensor has been above the Critical threshold for longer than the delay period  
**MAINTAIN** Sensor is in Maintain Mode. No alerts will be generated while the sensor is in this mode  
**ALARMOFF** Alarm has been turned off on this sensor  
**SERVICE** Sensor is in Service Mode. After the Service Timeout this sensor will return to Normal. No alerts will be generated while in Service  
**MISREAD** Sensor has recorded a value which the system detects as a bad reading.  
**COMMFAIL** Communication with this sensor has failed  
**COMMISS** Temporary Communication failure with this sensor

**Code Area Room**  
Sensor 1: 1 A, 5.0 °C  
Sensor 2: 1 P, 5.3 °C  
Sensor 3: 2 A, 4.9 °C  
Sensor 14: 2 P, 4.9 °C  
MainsPower: ON  
Repeater 1: 11.5 V  
Repeater 2: 11.2 V

**Freezer 1**  
MainsPower: ON  
Repeater 2: 11.1 V  
Repeater 3: 11.0 V  
Fridge 1 A: 3.6 °C  
Fridge 1 B: 3.6 °C  
Fridge 2 A: 3.8 °C  
Fridge 2 B: 3.8 °C

**Cold Serve Over**  
Fridge A: 6.1 °C  
MainsPower: ON  
Fridge C: 5.2 °C  
Fridge D: 5.1 °C  
Short Stay Fridge A: 3.8 °C  
Short Stay Fridge B: 3.9 °C

**Spider Units**  
Fridge A: 3.6 °C  
Fridge B: 3.6 °C  
Freezer A: -18.0 °C  
Freezer B: -18.0 °C  
Fridge C: 5.1 °C  
Fridge D: 5.6 °C  
MainsPower: ON  
Fridge E: 5.4 °C

## Secure Data, Real-Time Alerts

The Network Controller relays information to the Web Portal. Data is secure, only accessible to authorised users via a web browser. Additional software is not required. All data transmissions are encrypted for additional security.

The Portal provides on-demand access to real-time and historical data and reports for all locations. The Report Wizard can create scheduled reports distributed automatically via email.

Push notifications, email and voice calls can be configured to reach designated personnel and provide delivery confirmation, with messages including the exact location and details of the

alarm. Escalating alerts can be made to designated personnel until someone logs in, investigates the alarm, and takes action.

Audible/visual alarm beacons can be installed at high-visibility points within the facility to alert on-site staff. Beacons can be configured to alarm for an individual sensor or group of sensors.

Once a problem is identified and corrected, the incident can be recorded in the historical audit log. The user can use a pre-defined list or manually enter a corrective action. Every corrective action is date and time stamped and includes electronic signatures.

The screenshot displays a web portal interface for HACCP records. On the left is a dark blue sidebar with navigation buttons: Dashboard, Site Map, HACCP records, Alert Events, Report Wizard, HACCP Records, and User Profile. The main content area is titled 'First Cook' and includes a 'Tablet' label, a dropdown menu set to 'All', and a 'Back' button. Below this is a 'Quick Date Range' section with a dropdown set to 'Last month' and a 'Go' button. A 'Download detailed records' link with three document icons is present. The core of the interface is a table with the following data:

Date & Time	Operator	Product	Use by/Best before	Batch Code	Temperature	Corrective Action
2020-03-03 11:04:24	Mary	5 Spice Pork	28-01-2022	407054	76.2°C	
2020-03-03 12:57:15	Dave	5 Spice Pork	28-01-2022	347589	77.0°C	
2020-03-03 11:39:59	Julie	Beef Stroganoff	28-01-2022	180687	76.5°C	
2020-03-03 12:11:16	Kevin	BBQ Chicken	28-01-2022	279899	75.1°C	
2020-03-03 12:28:25	Patrick	BBQ Ribs	28-01-2022	978433	76.7°C	
2020-03-03 12:51:54	Kerry				26.2°C	

# FoodCheck 2.0 Technical Specification

	Temperature Sensor	Bluetherm One LE	Ray Temp Blue
<b>Temperature Range</b>	-30°C - +50°C (-22°F - +122°F)	-199.9 to 1372 °C	-49.9 to 349.9°C
<b>Accuracy</b>	+/- 0.5°C (0.9F)	±0.4°C ±0.1% of reading	±1 °C (0 to 100 °C) otherwise ±2 °C
<b>Resolution</b>	—	0.1 °C/°F to 999.9	0.1 °C/°F
<b>Communication Type</b>	Radio Frequency	Bluetooth	Bluetooth
<b>Communication Range</b>	100m	Bluetooth	Bluetooth
<b>Display</b>	—	12mm LCD	0.01 to 1 12mm LCD
<b>RF Band</b>	916MHz (USA); 868MHz (Europe).	—	—
<b>Battery Type</b>	2x 3.6V 2Ahr AA Lithium Battery	1 x AA	3 x 1.5 volt AAA
<b>Battery Life</b>	5 years with a 5 minute read data transmission interval.	3000 hours	3000 hours
<b>Dimensions</b>	36 x 50 x 65 mm	34 x 66 x 109 mm	25 x 56 x 128mm
<b>Weight</b>	75g	165g	140kg
<b>Enclosure</b>	IP67 Polycarbonate	ABS plastic with Biomaster anti-bacterial additive	ABS plastic with Biomaster anti-bacterial additive
<b>Communicates with</b>	Network Controller	FoodCheck 2.0 Tablet	FoodCheck 2.0 Tablet





# KELSIUS

**kelsius.com**

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**Web** www.kelsius.com

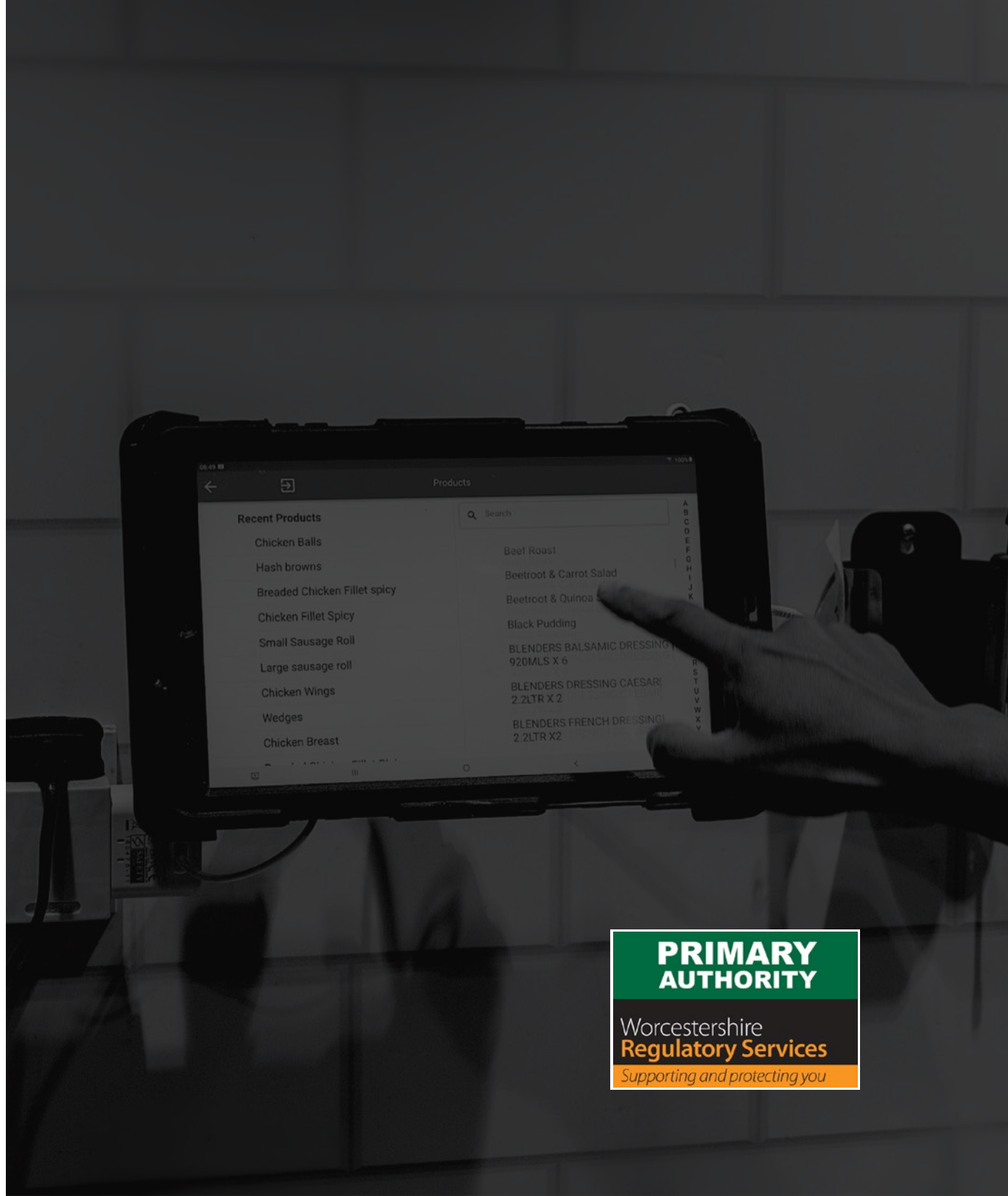
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**PRIMARY  
AUTHORITY**

Worcestershire  
**Regulatory Services**

*Supporting and protecting you*