# ThermalTrace-CS
## Core and Surface Wireless Temperature Monitoring for Defrosting and Meat Drying

Monitoring the external temperature during the defrosting process to ensure that the meat temperature doesn't get above 9°C or 10°C helps prevent bacterial growth.

Measuring both internal and surface temperatures during meat drying ensures product safety by killing pathogens, achieves desired product quality by controlling moisture and texture, and optimizes the drying process by monitoring the effectiveness of the heat and air circulation for efficient and consistent results.

The internal temperature confirms the meat's core has reached the necessary heat to eliminate bacteria, while the surface temperature indicates the rate of moisture evaporation and influences the formation of the exterior texture.

Surface Temperature
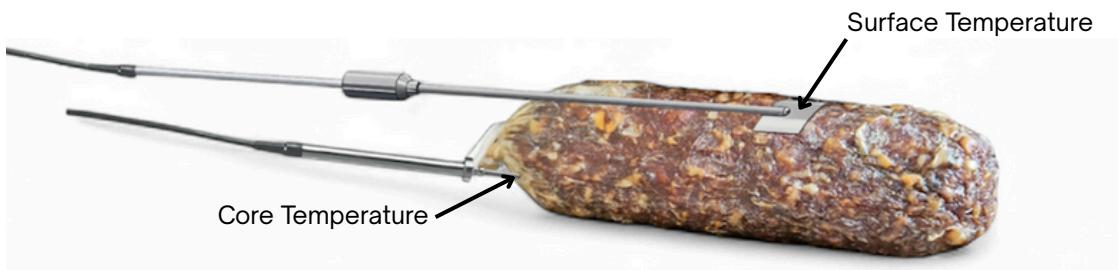
Core Temperature

### Why measure Internal Temperature?
- Food Safety: It confirms that the meat has reached a temperature hot enough to kill harmful bacteria and pathogens like E. coli and Salmonella, preventing foodborne diseases.
- Pathogen Reduction: Some processes require a specific internal temperature for a set time before drying to achieve a significant reduction in bacteria, ensuring a safer product.

### Why measure Surface Temperature?
- Drying Rate: The surface temperature directly influences the rate of moisture evaporation from the meat. Monitoring it helps to ensure that moisture is removed efficiently without over-drying.
- Texture Control: A surface layer forms during drying, and its development is influenced by the temperature. Measuring the surface temperature helps to control the texture, preventing excessive hardness or a hardened crust from forming too quickly.
- Process Efficiency: By keeping track of the surface temperature, you can adjust the drying air temperature and airflow to achieve a more efficient drying process.

### Why Measure Both Together?
- Balanced Process: You need to balance the need for internal safety with the need for effective surface drying.
- Quality Assurance: Measuring both temperatures ensures the final product is not only safe but also has the desired texture, flavor, and nutritional value by controlling the overall drying process.

Dimensions: 306.86, 116.49, 60.66, 64, 41.8



**IP67**
DUST & WATER RESISTANT
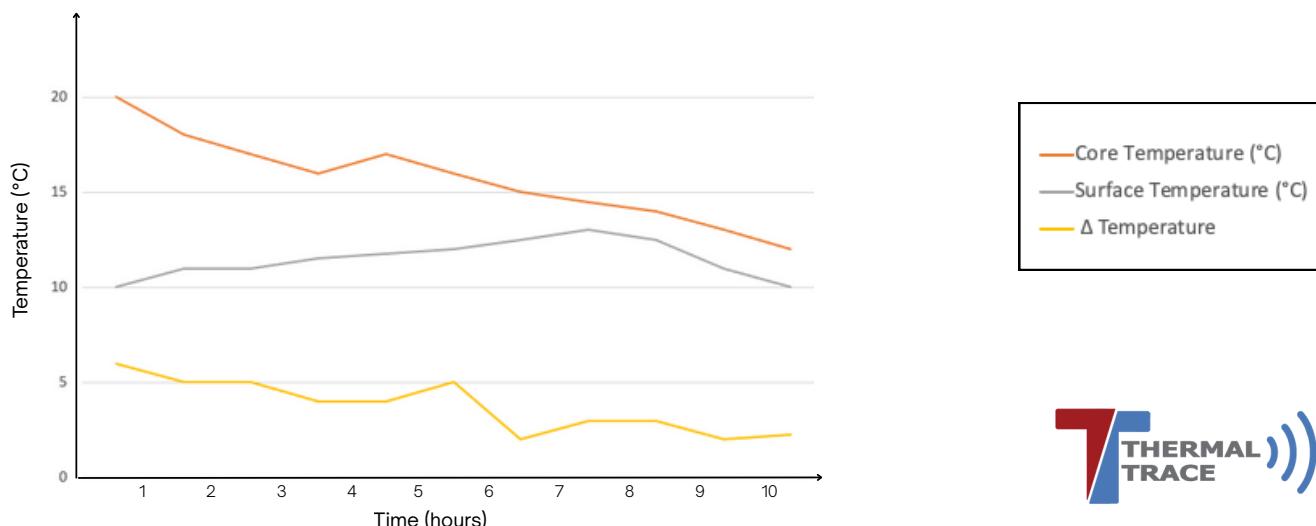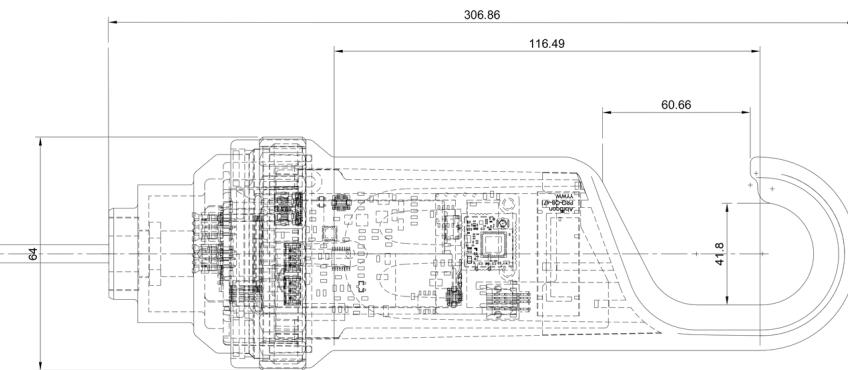
# Specifications

| Temperature | |
|---|---|
| Probe Temperature Range | -50 to 130 C |
| Accuracy | 0.15 C at 0 C |
| Sensor Type | 100 ohm class A RTD per din en 60751 |

| General | |
|---|---|
| Reading Rate | 1 Reading every 3 min to 1 reading every 24 hours |
| Memory | 25,000 Readings |
| Start Modes | Start/Stop |
| Calibration | Digital calibration through software |
| Calibration Rate | Automatically recorded within device |
| Power | (1) LiSOCl2 3.6 V battery User Replaceable |
| Battery Life | 1 year @ 5 min reading interval |
| IP Rating | IP67 |
| Data Format | Date and time stamped °C,°F |
| Operating System Compatibility | Windows 10 or later | Linux |
| Operating Range | -20°C -125°C |
| Cable Lengths | Customizable |
| Probe Lengths | Customizable |
| Body Material | P.O.M Polyoxymethylene |

| Wireless | |
|---|---|
| 915 Mhz Lorawan | |
| Band | 902-928 Mhz |
| Maximum Output Power | Node: Maximum +20dbm Gateway: Maximum |
| Receiver Sensitivity | Typically -139dbm |
| Transmission Distance | 15KM line of sight |

# Automatic Reports