CCSE Cold Chain Science Enterprises

UNI°COLD

Smart Cold Chain Monitoring System

Beyond temperature alerts and simple temperature graphs, UNI°COLD offers a variety of modern features and functions!

Designed using advanced statistical analysis tools and metrological knowledge, giving Cold Chain and quality professionals the solution they need to meet increasing compliance requirements, understand product risks, and mitigate excursions.

Be GxP COMPLIANT

Validated as per the ISPE GAMP5 and FDA 21 CFR Part 11

Data availability and integrity ensured by secure and redundant servers

Act FAST

Get real-time data and notifications of risks & excursions with **Advanced Alarm System**

Investigate the excursions and get to the root-cause faster with the built-in **Analysis Tools**
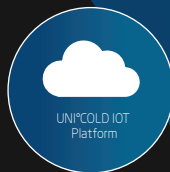
Be PROACTIVE

Monitor risk and identify performance drifts with the **Trend Analysis** feature

Monitor performance and identify where to act with the **Automated Reporting** feature

Warehouse

Fridge

Freezer

✓ Reliable
✓ Precise
✓ Easy to install

UNI°COLD IOT Platform

A wide range of hardware solutions that can meet the most challenging environments!

UNI°COLD as-a-Service!
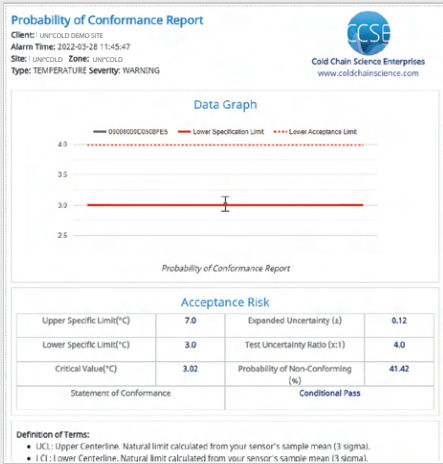
✓ Standard or Pro software package
✓ Turnkey and investment-free solution
✓ All-inclusive preventive and corrective maintenance service available
✓ Customizable packages fitted to your needs at a monthly fixed-fee

Act Fast with ANALYSIS TOOLS
Investigate the excursions and get to the root-cause faster!

PROBABILITY OF CONFORMANCE

- Use the Probability of Conformance Report to help evaluate temperature or humidity excursion impact on sensitive products

- Use the statistical probabilities and measurement uncertainties to understand where True values may lie (Conditional Pass, Conditional Fail)

- Further support quality decision and investigations with advanced statistical tools

POST CALIBRATION

- Generate Post Calibration Reports to detect in-control or drifting sensor pattern based on yearly data

- Determine the need for post calibration based on Post Calibration results

- Support quality decisions related to calibration interval rationals and the need for post calibrating sensors

Act Fast with ADVANCED ALARM SYSTEM
Get real time data and notifications of risks & excursions!

- Alarm Notifications sent by the system following a 3-tier escalation path, with warning and critical alarm states

- Alarm Schedules for notifications

- Disconnection Alerts for all sensors and devices to reduce connectivity downtime

- Battery Level Notifications
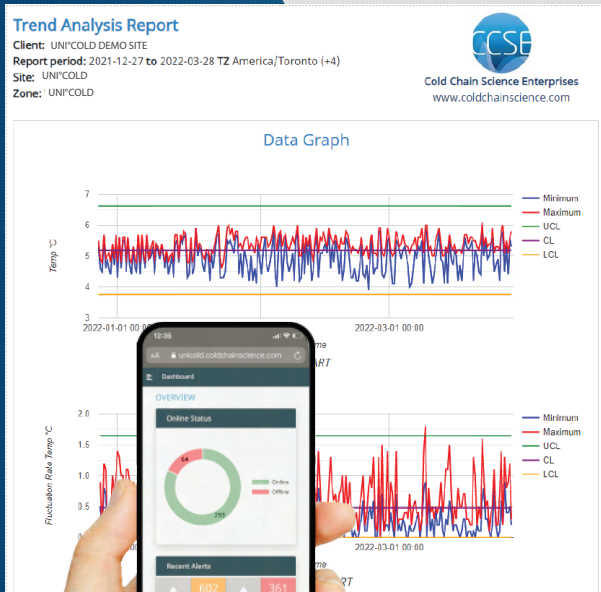
Be Proactive with **TREND ANALYSIS**
## Monitor risk and identify performance drifts!

- Understand the natural behaviors of your zone or equipment with automated statistical calculations

- Detect anomalies and drifting patterns before your zone or equipment reaches a critical state

- Proactively measure zone or equipment temperature and humidity performances (minimum and maximum temperatures and humidities, natural limits, and fluctuation rates)

- Subscribe to the monthly Trend Analysis Report and receive automated system observations, indicating environmental control improvement or deterioration

# Be Proactive with **AUTOMATED REPORTING**
Monitor performance and identify where to act!

- Automated Weekly Reports with all the statistics and metrics included for your critical zones

- Receive all information directly in your email inbox

- Automated Monthly Trend Analysis Reports to increase understanding of normal and abnormal/drifting patterns for every zones

- Identify faults or deteriorating equipment and changing environments before it reaches a critical state
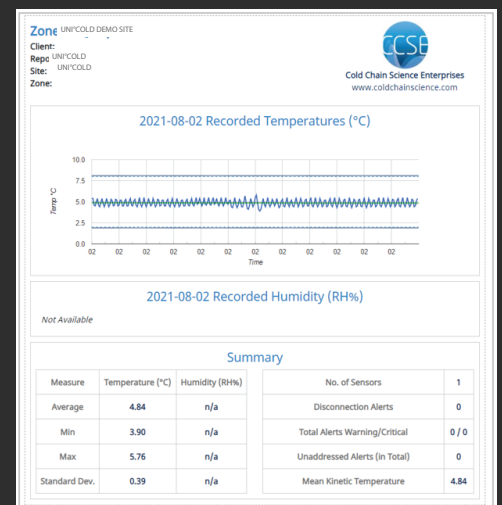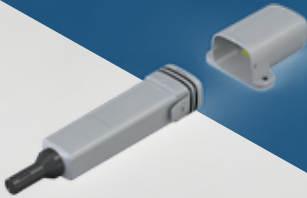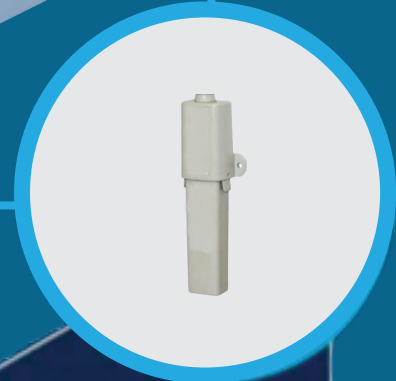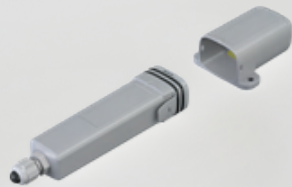
UNI°COLD SENSORS

LoRaWan UNI°COLD Serie
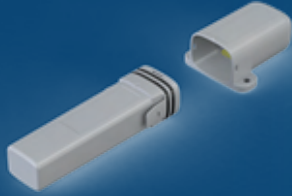
Wireless Temperature Sensor

- Communication: Up to 500m indoor
- Resolution: 0.1°C
- Temperature Range: -30°C to +50°C
- Accuracy: ±0.5°C
- IP65 Enclosure
- AA Li-SOCl2 3,6V 2Ah Battery

Wireless Humidity Sensor

- Communication: Up to 500m indoor
- Resolution: 0.1°C / %RH
- Temperature Range: -30°C to +50°C
- Accuracy: ±0.5°C
- Humidity Range: 0% to 100 %RH
- Accuracy: ±3.0 %RH
- IP65 Enclosure
- AA Li-SOCl2 3,6V 2Ah Battery

Wireless RTD Temperature Sensor

- Communication: Up to 500m indoor
- Resolution: 0.1°C
- Temperature Range: -200°C to +650°C (external probe)
- Accuracy: ±0.5°C
- Cable Length: up to 30m
- IP65 Enclosure
- AA Li-SOCl2 3,6V 2Ah Battery

Wireless Air Quality Sensor

- Communication: Up to 300m indoor.
- Resolution: 0.1°C / %RH, 1 ppm, 0.01 Pa.
- Temperature Range: 0°C to +50°C.
- Accuracy: ±0.5°C.
- Humidity Range: 0% to 100 %RH.
- Accuracy: ±3.0 %RH.
- CO2 Range: 400 to 5000 ppm*.
- Accuracy: ±45 ppm + 3% reading.
- Differential Pressure: -125 to +125 Pa.
- Accuracy: ±0.08 Pa + 3% Reading.
- IP20 Enclosure.
- AA Li-SOCl2 3,6V 2Ah Battery

*CO2 Auto-Calibration function

Hassle-free yearly calibration exchanges without any monitoring downtime! Exchange sensor modules by pressing a single button!

10 days of measurement storage capacity at a 15 minutes transmit interval

Up to 2 years of battery life autonomy at a 15 minutes transmit interval

Our 915MHz LoRaWan sensors can be installed directly inside your refrigerators without reducing its capacity to transmit or significantly deplete its battery. This makes the 915MHz LoRaWan serie the most user friendly and simple monitoring solution for pharmacy, clinic, and hospitals, as well as restaurant!

Tested and proven using a PANASONIC SR-L6111W undercounter refrigerator and a EFI C1-27VC-R upright refrigerator.

WiFi UNI°COLD Serie

- Temperature Range: -40°C to +99°C (external probe).
- Accuracy: ±0.5°C.
- Resolution: 0.1°C.
- Memory Capacity: 16,129 temperature readings. 67 days at 6-minute logging interval.
- Power Source: Power Supply, backup batteries (2x 1.5V AAA Alkaline).
- IEEE 802.11 b/g/n (2.4Ghz) WPA/WPA2 security.
- IP51 Enclosure (when mounted vertically).
- Available with single or dual probes

*ULTRA-LOW Temperature WiFi Sensor also available!

UNI°COLD RECEIVERS & GATEWAYS

LoRaWan Receiver

- Indoor Use
- 915MHz Long-Range
- Storage temperature: -10°C to +45°C
- Power Input: 12V, 1A

WiFi/LoRaWan/Cellular Gateway

- Indoor Use
- 2.4GHz WiFi / Ethernet / 3G/4G
- Storage temperature: -10°C to +45°C
- Power Input: 12V, 2.5A