# UNITESS AMBIENT
temp & humidity monitoring

## ((( ONLINE MONITORING
storage | transportation

-25...+50 C⁰   10...90 RH

www.unitessambient.com

Real-Time
food safety
monitoring system

UniTesS THB 1

WHOUSE 10    10 B1M H Y8
21.76°c  37.1%  952dB
^25.00  ^60.0  ^106.0
v2.00   v30.0  v86.0

GMP — Good Manufacturing Practice Certification
GDP — Good Distribution Practice
ISO

# STORAGE DATA LOGGER KIT

# TRANSPORTATION DATA LOGGER KIT

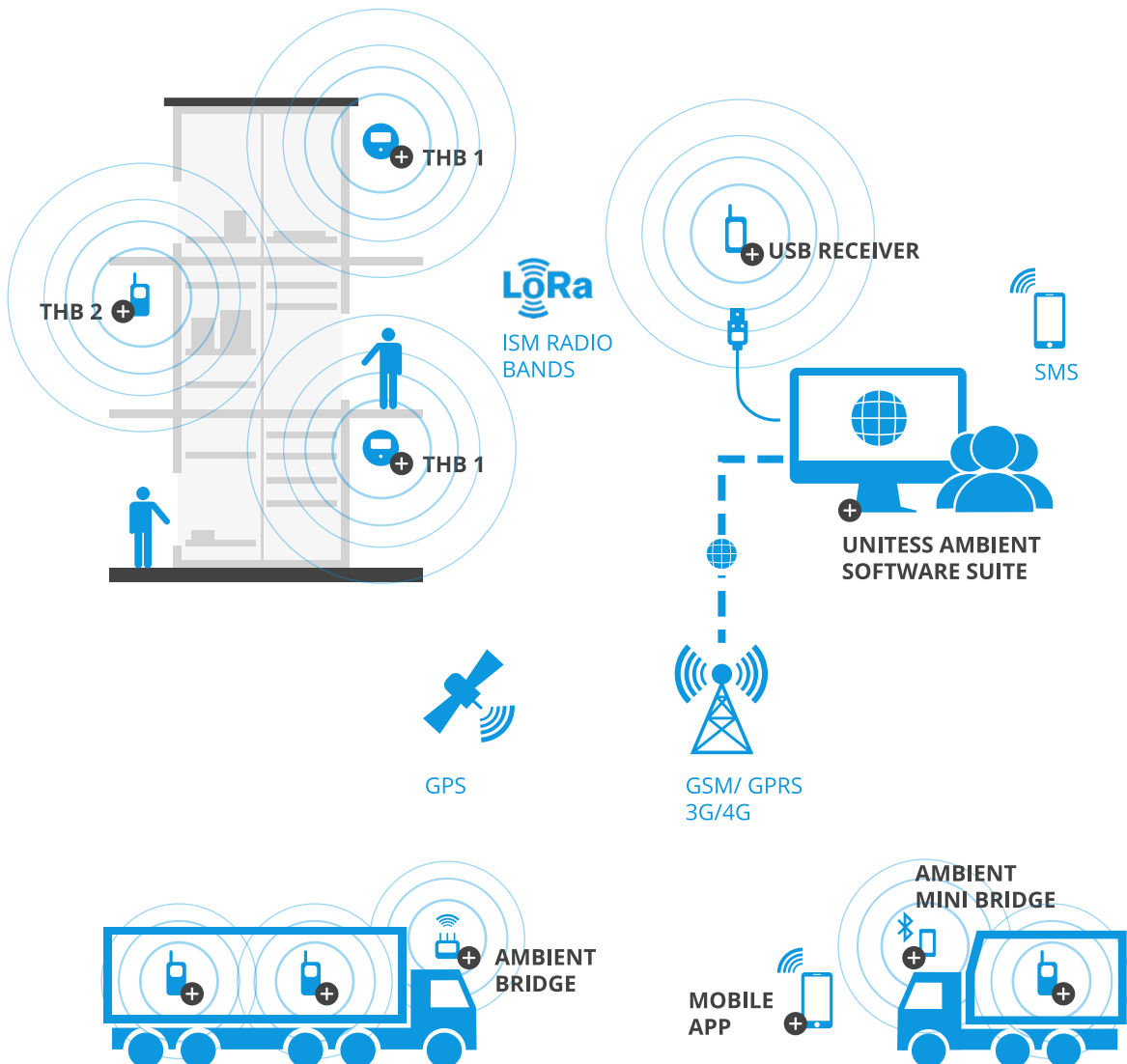# SYSTEM REQUIREMENTS FOR MONITORING SOFTWARE

**TEMPERATURE**  **HUMIDITY**

Storing food at the proper temperature is crucial for many businesses. Automated temperature monitoring ensures food safety during processing and storage, as well as satisfies electronic recordkeeping requirements.

Records should satisfy regulatory requirements and prove that critical temperatures were met in every phase of your operation — from a farm to a retail store.

Any streamlined food temperature monitoring safety process uses a wireless temperature monitoring system. This helps eliminate human error resulting from manual checks. Automated record-keeping and immediate alarm notification when pre-set temperature boundaries occur enable retail owners to meet requirements and ensure the high quality of stock.

When implementing our system, you'll be able to receive alerts by email, text messages, or phone. You'll learn the exact moment when the temperature became too low or too high. This will enable you to solve the issue instantly — before heat or frost destroys your perishables.

THB 1

THB 2

THB 1

LoRa
ISM RADIO BANDS

USB RECEIVER

SMS

UNITESS AMBIENT SOFTWARE SUITE

GPS

GSM/ GPRS 3G/4G

AMBIENT BRIDGE

AMBIENT MINI BRIDGE

MOBILE APP

# BENEFITS

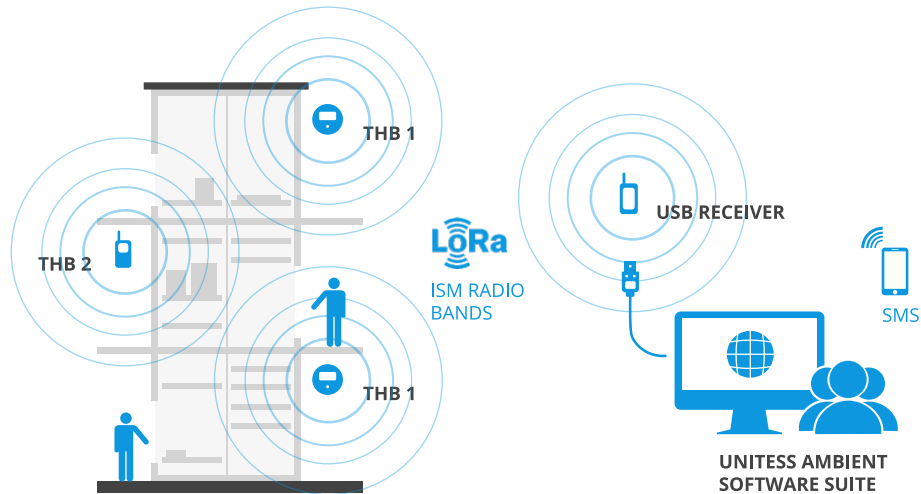| | |
|---|---|
| 📋 Compliance with regulations | ISO, GMP, GDP regulations |
| 💎 High accuracy and long sensors life | Thermohygrometers and thermometers manufactured by UNITESS is a Measuring Instrument with high accuracy:<br>• ± 0.3 C, ± 3 % RH, ± 0.2 kPa.<br>• Normalized degradation of accuracy at the interval of 10 years.<br>• Long-term drift max <0.03 °C/yr, <0.25 %RH/yr |
| 💻 Two types of perpetual software license | • Cloud-Based<br>• Self-Hosted |
| 📶 ISM Wireless Connectivity | Up to 2 km in urban areas |
| 24 Continuous real time monitoring | Automated report generation |
| 🔌 Radio & USB configuration | This allows to reduce the human factor nearly completely. |
| ❄ Star topology without the repeaters | Single receiver for the entire building |
| 🔋 Unique battery life | Custom LoRa based RF protocol, E-ink screen and deep microcontroller sleep mode enable unique battery life 1,5-2 years. |

# INDOOR TEMPERATURE AND HUMIDITY MONITORING



**Key features**

- THB1/THB2 thermohygrometers are installed at control points determined by mapping (the number of points is not limited);
- Data is transmitted via a radio channel (up to 2 km in urban areas) to a receiver connected to a server (PC);
- Information about storage conditions is available from any PC in the network;
- In the absence of a signal, the data is written into the device's memory, when the signal is restored, it is automatically transferred to the database, which ensures the storage of all measurement results;
- The system provides notification of exceeding critical limits (SMS, e-mail).

# MONITORING OF TRANSPORTATION CONDITIONS



**Key features**

- THB2 thermometers are installed in the car body according to the mapping. Universal thermometer THB2 suits well production premises, warehousing and transport.
- The data is transmitted via the radio channel to the UNITESS AMBIENT BRIDGE receiving station in the driver's cab and is displayed on the screen.
- In the coverage area of the mobile Internet, UNITESS AMBIENT BRIDGE transmits data about the location of the vehicle and the temperature regime to the server.
- When the power is turned off or the communication session fails, the information is accumulated in the flash memory of the thermometers, or in the memory of the receiving station in the driver's cabin.
- At the points of unloading, it is possible to print a receipt with information about the conditions of carriage.
- Information can be viewed in real time from the Customer's server.

# THERMOHYGROMETER THB1
## SPECIFICATIONS

**+5...+50 C⁰**

| Parameter | THB 1C |
|---|---|
| Temperature measurement range | 5...50 $C^0$ |
| Temperature measurement error | ±0,5 $^{\circ}C$ |
| Temperature measurement resolution | 0,1 $^{\circ}C$ |
| Thermal reaction time | not more than 10 min |
| Relative humidity measurement range | 10...90 % |
| Humidity measurement error | ±3,0 % |
| Temperature measurement resolution | 0,1 % |
| Internal memory type | FLASH |
| Internal memory | 32 MB |

# UNITESS AMBIENT RF RECEIVER
## SPECIFICATIONS

USB receiver for receiving, processing and transmitting data from thermohygrometers (the number is not limited) to the server.One for the entire building!

| Parameter | Description |
|---|---|
| Dimensions (without antenna) | 91x54x17 mm |
| Antenna length | 50 mm |
| Antenna connector type | SMA |
| Weight | 150 g |
| Connection interface | USB mini-B |
| Antenna | 868 MH, external |

# THERMOHYGROMETER THB2
## SPECIFICATIONS

-25...+50 C$^0$ 🌡️

| Parameter | THB2 | THB 2B | THB 2C |
|---|---|---|---|
| Temperature measurement range | 0...50 C$^0$ | | -25...+50 C$^0$ |
| Relative humidity measurement range | 0...90% | - | - |
| Humidity measurement error | ± 3 % | - | - |
| Moisture measurement resolution | 0,1 % | - | - |
| Temperature measurement error, | ±0,5 $^\circ$C | ±0,5 $^\circ$C | ±0,5 $^\circ$C |
| Temperature measurement resolution | 0,1 $^\circ$C | 0,1 $^\circ$C | 0,1 $^\circ$C |
| Antenna type | external | | |
| Sensor type | internal | | external |
| Internal memory type | FLASH | | |
| Internal memory | 32 MB | | |

# TRUCK MONITOR UNITESS BRIDGE
## SPECIFICATIONS

Receiving and transmitting device in the driver's cab.

| Parameter | Description |
|---|---|
| DC power | 12-24 V |
| Current consumption<br>— when powered by 12 V<br>— when powered by 24 V | 560 mA<br>250 mA |
| Max. current consumption | 1000 mA |
| Radio band | ISM (Industrial, Scientific and Medical band) is a part of the radio spectrum that can be used for any purpose without a license in most countries |

| Parameter | Description |
| --- | --- |
| Receiver sensitivity | not more than 148 dBm |
| GPS receiver sensitivity | not more than 166 dBm |
| GSM bands | GSM 850, EGSM 900, DCS 1800, PCS 1900 |
| SIM card format | Micro-SIM |
| Transmitter power output GSM (W):<br>Class 1 ( DCS 1800 и PCS 1900):<br>Class 4 (GSM 850 и EGSM 900): | <br>1<br>2 |
| Transmitter power | not more than 14 (25) dBm (mW) |
| GPRS data rate | 85,6 kilobit per second |
| Protection Rating | IP 20 |
| Data Transmission Interface | USB 2.0, GSM, radio channel |
| Dimensions | not more than 150 x 118 x 27 mm |
| Weight | not more than 0,45 kg |
| Battery life | not more than 24 hours |

## UNITESS AMBIENT SYSTEM SPECIFICATIONS

| Parameter | Description |
| --- | --- |
| Configurable parameters for THB 1 and THB 2 | • the name of the premises<br>• the measurement interval<br>• the data transmission interval<br>• the limits of acceptable values<br>• the radio channel parameters |
| PC connection interface | • USB<br>• radio channel |
| Out of Range Alerts | • on the screen<br>• in the program on the PC<br>• SMS<br>• e-mail |

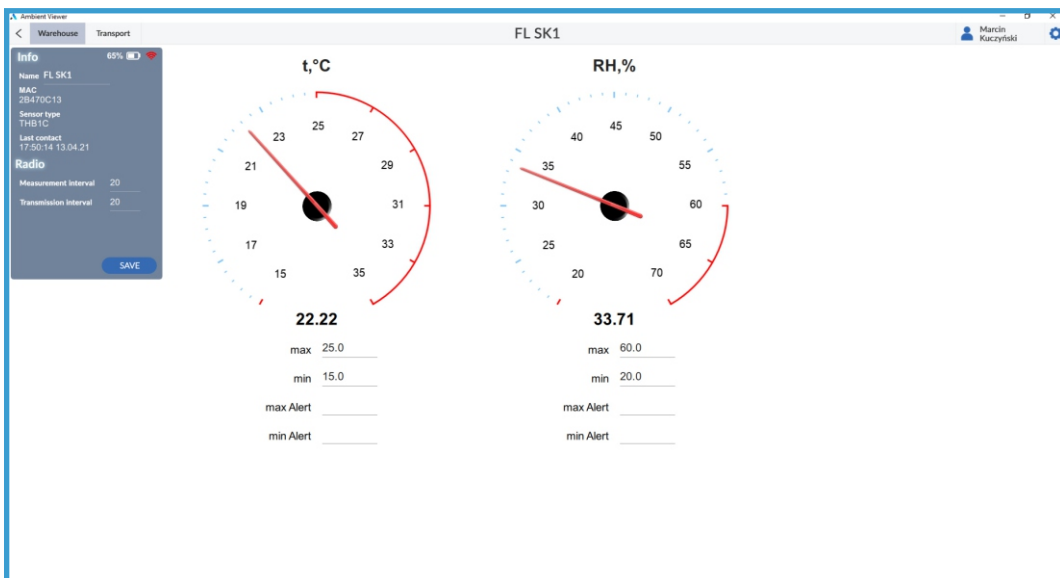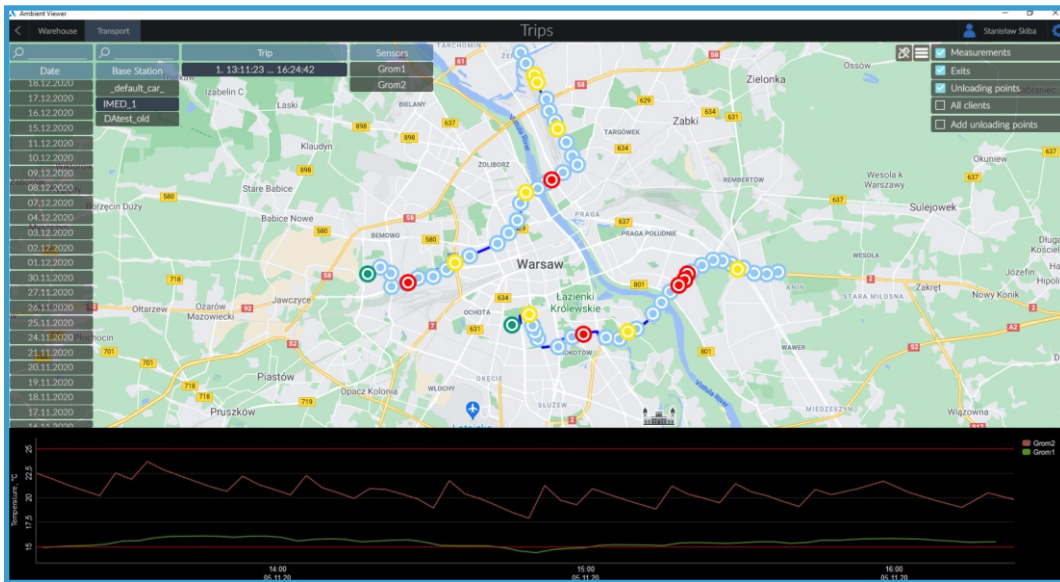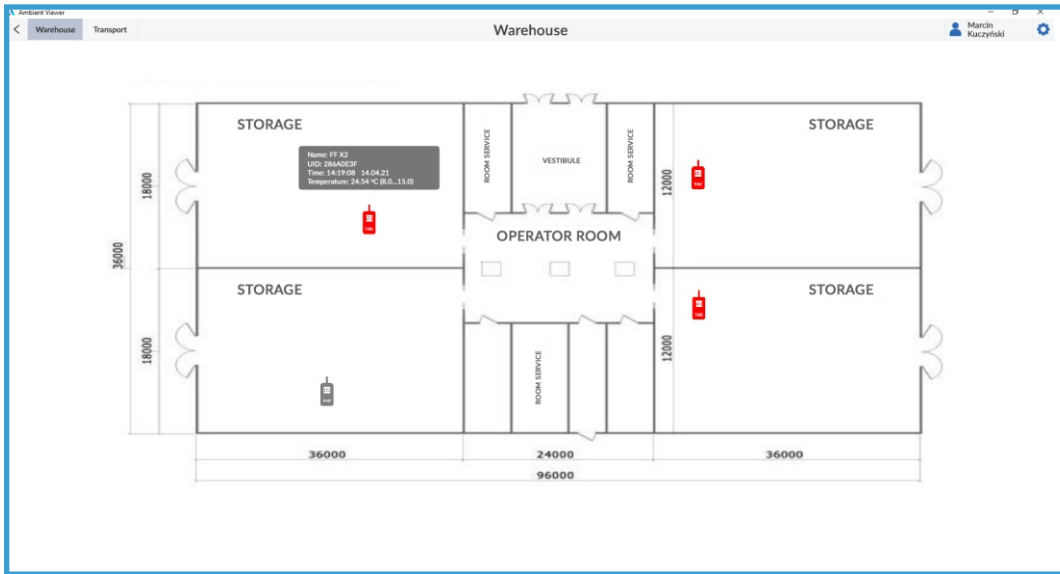| Parameter | Description |
|---|---|
| Data displayed on a screen | • measured values of temperature and humidity<br>• name / name of the sensor or room<br>• measurement and data transmission intervals<br>• critical limits of measured values (temperature, humidity)<br>• radio channel frequency parameters<br>• radio presence / absence statusbattery indicator |
| Measurement interval | from 0 to 90 min |
| Premices naming format | letters and numbers, up to 6 characters |

# SOFTWARE

Depending on the request we provide two types of perpetual software license:
• Cloud based
• Self-hosted

The software has flexible settings, simple and intuitive interface. The program allows you to:
• carry out continuous monitoring of temperature and humidity during storage and transportation of drugs in real time;
• save and restore information in cases of signal lost;
• transfer to the server data about the location of the vehicle and the conditions of carriage;
• print out a check with information on the conditions of transportation of medications;
• signal about going beyond the set limits of temperature and humidity;
• adjust the interval for reading information from the thermohygrometer;
• manage the list of users who have access to information;
• automatically generate an electronic «Register of storage conditions for medicinal products»;
• keep a log «audit trails» with time stamps for entering, changing and deleting data, containing the user ID;
• keep a log of sent SMS messages;
• generate various types of reports (Excel, Word, PDF).

# SCREENSHOTS

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