



SensGuard PT100 High Accuracy

Wireless Extreme Temperature Sensor
with External Probe

Description

The **SensGuard PT100 High Accuracy** is a professional, industrial-grade wireless sensor designed for high-precision temperature monitoring in extreme environments from **–200°C to +200°C**.

Equipped with a high-performance external RTD probe, this sensor is designed for deep freeze storage, scientific labs, and industrial processing. It operates in two software-configurable modes: a high-precision mode with a **0.01°C step** and a standard-precision mode with a **0.1°C step**. The device is powered by two AAA batteries, offering a battery life of up to **1.5 years** in high-accuracy mode or up to **5 years** in standard-accuracy mode. Depleted batteries can be easily replaced by the user.

Measurements are securely transmitted over an encrypted radio channel to a compatible SensGuard gateway for cloud integration.

Key Features

- **Extreme Measurement Range:** Precise monitoring from –200°C to +200°C.
- **Selectable Precision Modes:** Choose between high-accuracy (0.01°C step) and standard-accuracy (0.1°C step) modes.
- **Long Battery Life:** Up to 1.5 years in high-accuracy mode or up to 5 years in standard-accuracy mode.
- **User-Replaceable Power:** Uses standard AAA batteries, simplifying long-term maintenance.
- **Secure Transmission:** Fully encrypted radio link using AES-128 standard.
- **On-Board Diagnostics:** Dedicated network diagnostic button and status LED.

Typical Applications



Cryogenic & Deep Freeze Storage:
Ultra-low temperature monitoring in medical freezers, laboratories, and bio-banks.



Industrial Processing:
High-accuracy temperature logging in manufacturing pipelines, chemistry, and autoclaves.



HVAC Systems:
Real-time monitoring of heating and cooling systems.



Server Rooms & Data Centers:
Localized thermal monitoring of high-density equipment.



Cold Chain Logistics:
Temperature verification of perishable items and pharmaceuticals.

Operating Instructions

Powering the Sensor On/Off

To prevent battery drain during transit and storage, the sensor is shipped in a powered-off state.

- **Power On:** Press and release the **JOIN** button.
- **Power Off:** Press and hold the **JOIN** button for 10 seconds.

Switching Accuracy Modes

You can toggle the sensor between **High Accuracy** mode (0.01°C resolution) and **Standard Accuracy** mode (0.1°C resolution) to optimize battery life:

1. Press and hold the **JOIN** button for more than 10 seconds.
2. The **STATUS** LED will flash quickly 5 times and then light up continuously for 2 seconds to confirm the mode transition.
3. The selected mode is stored in non-volatile memory and persists after battery replacement.

Device Registration & Configuration

Measurement collection requires a compatible SensGuard gateway (e.g., SensGuard TCP LR X2).

Follow these steps to register the sensor:

1. Power on the sensor by pressing and releasing the **JOIN** button.
2. Log into the SensGuard cloud portal at my.sensguard.lv and navigate to the **Connection** section.
3. Launch the **Connection Wizard** and follow the step-by-step setup instructions.
4. Once registered, the sensor becomes fully operational within five minutes (the sync time required for the gateway to apply the new hardware configuration).

Network Connection Diagnostics

You can verify the connection status at any time by pressing and releasing the **JOIN** button on the sensor body. The onboard **STATUS** LED indicator will display the current network state:

LED Pattern	Network Status
Two short flashes	No connection to the gateway, or the sensor has not been registered in the system.
One long flash	Successful connection to the gateway and the SensGuard cloud system.

Technical Specifications

Parameter	Specification
Sensor Element	PT100 RTD
Measurement Range (Probe)	−200°C to +200°C
Operating Temperature (Sensor Body)	−20°C to +55°C
Measurement Resolution / Step	0.01°C (High Accuracy mode) 0.1°C (Standard Accuracy mode)
Measurement Accuracy	±0.1°C
Probe Material	Stainless Steel (SUS304)
Probe Cable Length	1.0 m (<i>longer options available upon request</i>)
Measurement Interval	5 minutes
Wireless Frequency	868 MHz (ISM Band)
Transmission Power (TX Power)	+14 dBm (25 mW)
Communication Range	Up to 150 m (clear line-of-sight)
Data Encryption	AES-128
Battery Type	2 × AAA (1.5V, Lithium recommended for sub-zero temperatures)
Battery Life	• 1.5 years in High Accuracy mode (0.01°C step) • Up to 5 years in Standard Accuracy mode (0.1°C step)
Enclosure Protection Rating	IP54
Dimensions (Sensor Body)	67 × 67 × 25 mm

Mounting Options

The sensor is designed for quick, non-destructive installation:

- **Double-Sided Adhesive Tape:** The sensor is mounted exclusively using high-bond industrial double-sided tape. This allows for rapid and secure placement on smooth surfaces (such as plastic, metal, glass, or painted walls) without the need for drilling or additional hardware.

Compliance & Certifications

The SensGuard PT100 is designed and manufactured in accordance with major regulatory standards:

- **CE Mark:** Fully compliant with relevant European Union directives.
- **RoHS:** Built with environmentally friendly, lead-free components.

Ordering Information

Model / Part Number	Description
SensGuard PT100HA	Wireless Extreme Temperature Sensor (High Accuracy, 1 m probe)
SensGuard TCP LR X2	Wireless Gateway / Data Collector (LAN)



SensGuard

SENSE OF SECURITY



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