COOL GUARD
— Sensors to Cloud —

Frigo 101 BB

# IoT-based indoor location tracking for coolers

*Technical Specifications*

## System Overview

The CoolGuard Frigo 100 is an advanced IoT-based monitoring device designed for coolers. Unlike GPS-based trackers, it utilizes GSM triangulation and proprietary location algorithms to determine the location of coolers, even in indoor environments such as shops and shopping complexes where GPS signals are unavailable. Additionally, the device offers temperature monitoring as an optional feature, ensuring compliance with cooling standards and preventing potential spoilage of products

### Key features

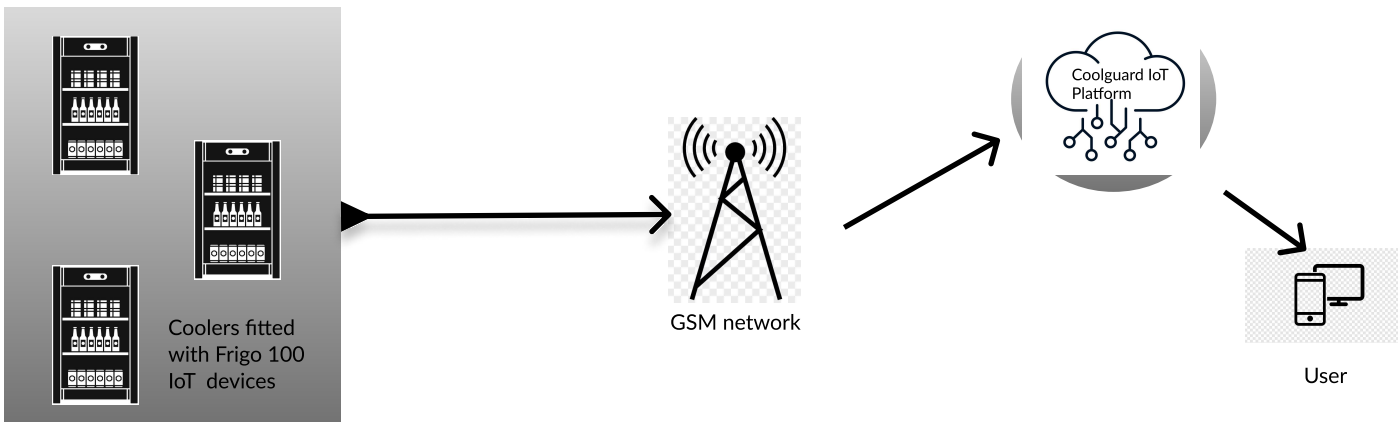

- Monitor cooler locations: Provides periodic location updates (configurable to once every 30 minutes or once per day).
- Monitor cooler temperature (optional): Tracks and records temperature levels to ensure proper cooling conditions.
- Streamline inventory management: Ensures accurate and automated tracking of cooler placements.
- Save time and costs: Reduces dependency on external agencies for annual inventory audits.
- Real-Time Motion and Vibration Detection: Continuously monitors motion, vibration, and changes in orientation.
- Orientation Locking: Ensures the cooler remains in its intended position by detecting unauthorized movement or tilt.

### Benefits

- Cost Reduction: Eliminates the need for external agencies to perform annual inventory checks, saving significant costs.
- Improved Efficiency: Automates location and temperature tracking, saving time and effort for operational teams.
- Accurate Inventory and Quality Records: Provides up-to-date and reliable information on cooler deployments and cooling conditions across India.
- Visibility and Control: Ensures comprehensive monitoring of the cooler network, supporting better decision-making.
- Enhanced Security: Prevents unauthorized relocation or tampering of coolers and freezers, safeguarding assets.

### How it Works

- Device Installation: The Frigo 100 device is installed in each cooler.
- Location Tracking: The device uses GSM triangulation and proprietary algorithms to determine the cooler's location.
- Temperature Monitoring (Optional): The device tracks the cooler's internal temperature and uploads it to the cloud.
- Data Transmission: Location and temperature data are uploaded to the CoolGuard cloud platform at specified intervals.
- Real-Time Access: Hershey's team can access detailed reports through the CoolGuard dashboard or mobile app.




**www.coolguard.cloud**
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CoolGuard is brought to you by Lateral emSoft Pvt. Ltd., a pioneer in IoT solutions for industries such as logistics, fleet management, and cold chain monitoring. With a focus on innovation and reliability, Lateral emSoft delivers advanced technologies like CoolGuard to ensure seamless monitoring and operational efficiency for coolers and freezers.

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### Device Specification

| | |
|---|---|
| Communication | GSM - GPRS |
| Location Method | Cellular-based (non-GPS) and Proprietary Technology |
| GSM Frequency Bands | 850MHz/900MHz/1800MHz/1900MHz) |
| Protocol Support | TCP/UDP/PPP |
| Data Logging Interval | Configurable between 1 to 60 minutes, allowing flexibility based on monitoring needs and data requirements. |
| Memory | Memory Capacity: Up to 5000 logs (device logs data when GSM network is unavailable) |
| Housing | ABS plastic casing |
| Dimensions | 40 x 78 x 55 mm |
| Firmware Update | Over-the-Air (OTA) capability |
| Power Supply | External 12V DC, 1 Amp, with low power consumption design for efficient energy use. |
| Built - in Battery | 3.7V, 450mAh |
| Durability | Industrial-grade components designed to withstand high usage rates and environmental stress in commercial storage facilities. |

### Temperature Sensor Specification

| | |
|---|---|
| Type | NTC sensor with high sensitivity, ideal for cold storage and precision monitoring environments. |
| Temperature Range | -40°C to +60°C |
| Temperature Accuracy | ±1°C across the full measuring range |
| B Value | 3435 K +/- 1*C |
| Casing | The temperature sensor is encased in epoxy resin for enhanced durability and environmental resistance,with a Teflon-coated wire for added protection and flexibility |
| Response time | Quick response time to capture real-time fluctuations and provide accurate readings to the cloud. |
| Mounting | Wall / Ceiling-mountable for optimal air temperature measurement, ensuring data represents true ambient conditions. |

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