# Helmet Sensor

Enhance worker safety and operational efficiency with the Lansitec Helmet Sensor. Combining GNSS, Bluetooth 5.0, and LoRaWAN technology, this sensor supports accurate indoor and outdoor positioning, making it ideal for construction sites, factories, distribution centers, or wide-open environments like ports and airports. From wear detection and fall alarms to zone-based alerts and step counting, the Helmet Sensor proactively monitors worker activities and conditions. Its integrated 3-axis accelerometer helps conserve battery by adjusting tracking frequency based on motion, while the robust IP66 and IK10-rated enclosure stands up to harsh industrial settings. Whether you're looking to streamline visitor management, protect lone workers, or optimize fleet oversight, the Lansitec Helmet Sensor delivers real-time data and reliable performance where it matters most.






**Comprehensive Sensing & Alerts**
Wear detection, fall detection, panic alarm, overstay alarm, and zone-based alerts for enhanced worker safety.

**Accurate Indoor/Outdoor Tracking**
Utilize Bluetooth for up to 3m accuracy indoors and GNSS with 2.5m precision outdoors.

**Robust Design**
IP66-rated and IK10 impact protection keeps the device functioning in harsh environmental and industrial conditions.

**Efficient Battery Use**
Built-in 3-axis accelerometer and barometer help manage power consumption by detecting motion and altitude changes.

**Simple Integration & Deployment**
NFC for quick device identification, magnetic charging port, and optional FOTA over Bluetooth streamline setup and updates.

**Flexible Connectivity**
LoRaWAN connectivity provides low-cost, long-range coverage, reducing the need for expensive cellular plans.

**Asset Management Compatibility**
Pair the sensor with BLE tags or beacons to gather location data from additional equipment or tools in the field.

**iBeacon Broadcasting**
The device supports Bluetooth broadcasting using the iBeacon protocol, with a default UUID of F2-A5-2D-43-E0-AB-48-9C-B6-4C-4A-83-00-14-67-FD, and Major/Minor values are the last 4 bytes of the device's DevEUI. The UUID, Major, Minor, Interval, and TX power in the broadcast are all configurable.

## SCENARIO



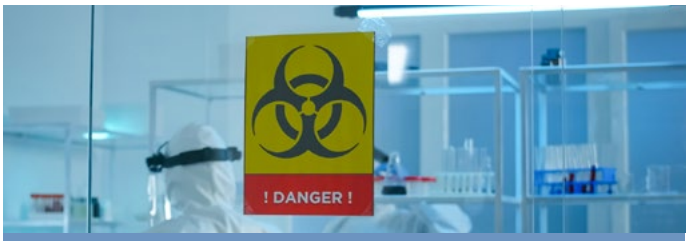
**CONSTRUCTION WORKER TRACKING**

Monitor on-site personnel for fall incidents, overstay alerts, and emergency notifications in large construction environments.



**FACTORY PERSONNEL TRACKING**

Improve shift management, locate workers during emergencies, and monitor time spent in restricted zones to boost operational safety.




**HAZARDOUS ENVIRONMENT MONITORING**

Deploy in mines, chemical plants, or other hazardous locations to detect falls, track exposure times, and enforce safety protocols.



**AERIAL WORK OVERSIGHT**

Track height data and detect sudden movements or falls for elevated work teams, increasing safety compliance.

# SPECIFICATIONS

## Connectivity

| | |
|---|---|
| **Bluetooth Protocol** | Bluetooth 5.0, iBeacon |
| **Bluetooth TX Power** | -20 to +4 dBm TX power, configurable in 4dBm steps |
| **Bluetooth Sensitivity** | -96dBm |
| **Bluetooth Positioning Accuracy** | 3m |
| **LoRaWAN Protocol** | LoRaWAN 1.0.2B, Class A |
| **Activation Mode** | OTAA or ABP |
| **LoRa Frequency** | US915, AU915, EU868, EU433, AS923, RU864, KR920, IN865, CN470 |
| **LoRa TX Power** | 0 to 20dBm |
| **LoRa Sensitivity** | -139dBm @SF12, BW125kHz, 434MHz/470MHz<br>-137dBm @SF12, BW125kHz, 868MHz/915MHz |
| **LoRa Distance** | > 1km in urban area |
| **Encryption** | AES128 |

## GNSS

| | |
|---|---|
| **GNSS** | BEIDOU/GALILEO/GPS/GLONASS/QZSS/SBAS (WAAS, EGNOS, GAGAN, MSAS) |
| **GNSS Position Accuracy** | <2.5m CEP |
| **Cold Start Duration** | 30s to 60s |

## Mechanics

| | |
|---|---|
| **Dimension** | 80*80*35mm |
| **Operating Temperature** | -10°C~+65°C |
| **Charging Temperature** | 0°C~+50°C |
| **Storage Temperature** | -20°C~+80°C |
| **Operating Humidity** | 5% ~ 95% (non-condensing) |
| **Weight** | 90g |
| **Housing Material** | ABS and PC |
| **Ingress Protection** | IP66 |
| **Impact Protection** | IK10 |

## Functions

| | |
|---|---|
| **Configurable Bluetooth data filter and payload report** | Filter any data bytes in a Bluetooth payload and report any via LoRaWAN |
| **3D Accelerometer** | Support |
| **Barometer** | Support, 10cm altitude accuracy |
| **PCB Coating** | Water proof coating |
| **NFC Tag (optional)** | 1KB |
| **Adjustable Position Report Interval** | 5s x n (0 to 65535) |
| **Heartbeat Report Interval** | 30s x n (1 to 255) |
| **Switch** | Touch button x2 |
| **FOTA over Bluetooth** | Support |
| **Battery Level Report** | Support |
| **Proximity Detection** | Support |
| **Asset management with Bluetooth** | Report nearby Bluetooth beacons/tags to a LoRaWAN gateway |
| **Multiple Bluetooth gateway LoRaWAN report synchronization** | Sync the clock and LoRaWAN report |
| **TDMA** | Support |
| **Bluetooth Data Compression** | Support |

## Power

| | |
|---|---|
| **Battery** | Li-ion rechargeable battery, 1200mAh |
| **GNSS (report interval >10minutes)** | Approx. 8,000 times |
| **Bluetooth positioning** | Approx. 33,000 times |
| **Standby Current** | 25μA |
| **Maximum Current** | 145mA |

Please refer to our battery calculator for more battery details.

## ORDERING INFORMATION

| Product Description | Part Number |
|---|---|
| Sensor, Helmet use, BLE5.0, LoRaWAN, GNSS, 1200mAh | 100-02388 |