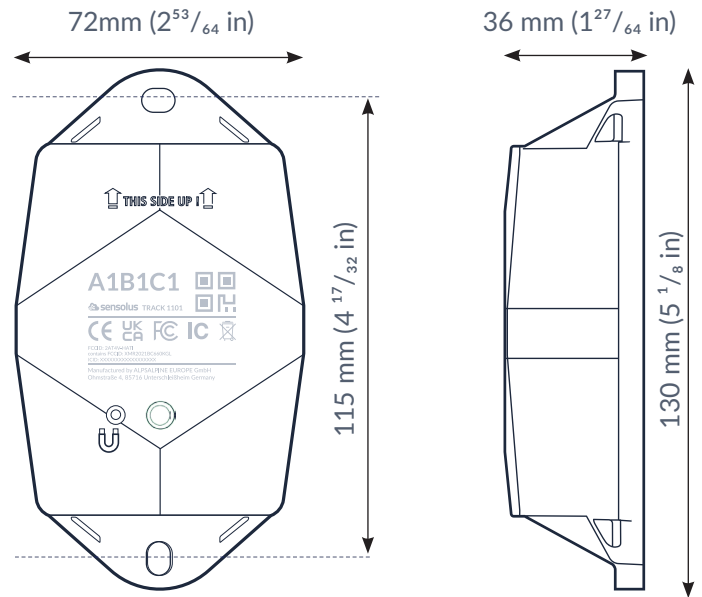The rugged low-power tracker with long battery life with NB-IoT connectivity and guaranteed data recovery. The tracker provides general localization, zone and high precision. The tracker comes with an onboard temperature sensor and shock detection. Compatible with multiple external environmental sensors. The tracker firmware can be upgraded over the air.

- GNSS
- Wi-Fi scanning
- Bluetooth geobeacon for zone precision
- Quuppa tested for high precision

- NB-IoT
- Europe and North America
- Data recovery

- IP69K & IP68
- IK 09
- Flame retardant

72mm (2⁵³/₆₄ in)

36 mm (1²⁷/₆₄ in)

115 mm (4¹⁷/₃₂ in)

130 mm (5¹/₈ in)

## Connectivity

### NB-IoT
· Energy efficient transceiver
· Internal omnidirectional antenna
· Bi-directional communication
· NB-IoT bands: Europe/North America
· Data recovery
· OTA firmware upgrade (NB-IoT)

### Bluetooth Low Energy (BLE)
Bluetooth Low Energy 5.0

## Geolocalization

### GNSS
Multi GNSS constellation chipset (GPS+GALILEO)

### BLE
· Sensolus proximity beacon detection
· Detectable by zone and high precision anchors

### Wi-Fi scanning
· Wi-Fi based geolocalization
· Wi-Fi 2.4 GHz

# Sensing

### Internal
· Activity monitoring
· Orientation monitoring
· Virtual tamper detection
· Temperature monitoring
  · range: -20°C till 60°C (-4°F to 140°F)
  · typical accuracy: +/- 0,25°C (+/- 0.45°F)
  · worst case accuracy: +/- 1°C (+/- 1.8°F)
· Configurable shock detection

### Environmental BLE sensors
· Temperature, humidity
· Fill level, contact, magnet
· Other BLE sensors can be added

# Mounting

· Holes 7x9mm ($^9/_{32}$ * $^{23}/_{64}$ in) for screws or rivets. 115 mm  ($4^{17}/_{32}$ in) distance between the centers of the mounting holes.
· Instructions for mounting the device are available in the Sensolus documentation center.

# Mechanics & design

### Antennas
All antennas are internal

### Size
130x72x36 mm  ($5^1/_8$ x $2^{53}/_{64}$ x $1^{27}/_{64}$ in )(L W H)

### Weight
212 gram (7.6 oz)

### Color
White

### Casing
· PBT/PC 29 TM-Z2 FR UV LS
· Flame retardant
· UV-stabilized

### Water & dust resistance
IP68 & IP69K

### Impact resistance
IK09

### Drop shock and vibration
EN 60068

### Operating temperature
-20°C to 60°C  (-4°F to 140°F) *

Battery life can be  affected when devices function for extended periods at the extremes of this range.

# Battery

### Standard 3 cell
· User replaceable battery pack (Li-SoCl$_2$) 10500 mAh
· 2.94 gram (0.1037oz) lithium

# Certifications

### Regulatory
·   CE
·   FCC
·   IC

### Environmental
Drop shock in progress

### Bluetooth 5.0
Declaration ID D068598

### Electrical safety
EN-60905-1

# User interaction

### Device activation
Magnetic activation

### LED feedback
Green & red LED feedback on the device

### Synchronize remote settings
·  Instant: Magnet activation
·  Periodic: No user interaction needed

# Management services

### Diagnostics
·  Battery lifetime prediction
·  Detailed energy consumption
·  Geolocation diagnostics
·  Installation
·  Communication quality

### Management
·  OTA firmware updates over NB-IoT and BLE
·  Remote configuration
·  Tracker usage profiles
·  External environmental sensors

# Application services

·  Localization
·  Journeys

·  Activity
·  Utilization

·  Connectable with
   environmental sensors
·  Temparture detection

·  Tilt detection
·  Shock detection

# Firmware configuration

### Communication service
·  Data recovery strategy
·  Communication conditions

### Location service
·  Motion based,context based, periodic or scheduled
·  Configurable update rate and journey detection
·  Priority sequence (GNSS, Wi-Fi scanning , Bluetooth geo-beacon)
·  GNSS fix parameters
·  Quuppa certified for high precision
·  Indoor detection algo
·  Wi-Fi scan strategy
·  BLE scan strategy

### General configuration
·  Rule engine configuration
·  Diagnostic levels
·  Boot methods
·  Accurate time synchronization

### Orientation service
Orientation detection parameters

### Environmental sensing
·  Polling and aggregation strategy
·  Alerts
·  Edge processing parameters

### Activity service
Activity detection parameters

### Shock detection
Shock algo detection parameters

### Tamper service
Virtual tamper algo configuration

# Security

·  Device unique encryption keys
·  End to end payload encryption Chacha 20

·  AES encrypted firmware
·  Firmware upgrade allows only signed firmware images