truvami

Smart Label



LoRaWAN · GPS · Wi Fi · NFC

Truvami® Smart Label is a powerful, seamless indoor/outdoor tracker offering precise localization with minimal energy consumption. It integrates a multi-constellation GNSS receiver, passive Wi-Fi MAC address scanner, and sensors such as an accelerometer and humidity sensor, all within an ultra-slim form factor. Fully autonomous, the device is powered entirely by ambient light through OPV technology, and can even last for weeks without light.

Multi-protocol approach

Seamless indoor and outdoor positioning through GPS, WiFi, BLE, NFC, and LoRaWAN

Powered by ambient light harvesting

Powered by ambient light through OPV technology

Advanced sensing capabilities

Features an integrated accelerometer to trigger motion-induced location fixes

Slim form factor

Designed for the slimmest requirements, with reusable seal and shelf mode for highest longevity

Easy commissioning

Quickly associate the tracker by simply scanning the QR code or using NFC

Datasheet 2026 version 2.1

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Mechanics & power

Mechanical specifications

Weight	30g
Dimensions	115 mm x 78 mm x 7 mm
Enclosure	PET 0.3 or 0.4mm and 3M Dual lock thin SJ-4570
Certifications	IP65 CE FCC (upon request)

Operating conditions

Temperature	Operations - 20 / 60 °C Charging (USB or OPV) 0/45 °C Storage -10 / 40 °C
Humidity	0 – 95 % RH, non-condensing

Power management

Power	3.8V, LiPo 450 mAh
Charging	USB (Type C), OPV through ambient light (recommended value = 1000 lux constant)

Estimated battery life

*Capacitor self-discharging is disregarded, battery lifetime calculated for SF9, 80% indoor, 20% outdoor distribution, 1 transmission per position, no sensor data

LUMEN LIPO **35cm² OPV / 450 mAh Bat**	**No Light**	**Low Light**	**Normal Light**	**Bright Light**
1 position / day	1.1 years	3.47 years	autonomous	autonomous
24 positions / day	298 days	1.6 years	autonomous	autonomous
48 positions / day	232 days	1.02 years	autonomous	autonomous
96 positions / day	160 days	218 days	1.35 years	autonomous
192 positions / day	99 days	118 days	170 days	1.45 years

Micro Controller Unit (MCU)

Type	Silabs EFR32BG27
RAM	64 kB
Flash	768 kB

Communication

LoRaWAN frequencies

EU868 MHz

US915 MHz (upon request)

LoRaWAN details

LoRaWAN® details	LoRaWAN® 1.0.3 Class A
Supported LoRaWAN® features	OTAA, ADR, adaptive channel setup
LoRaWAN® receiver sensitivity	-127 dBm (SF7, 125 kHz) to -141 dBm (SF12, 125 kHz)
LoRaWAN® transmission power	14 dBm / 22 dBm (depending on region)

Location

GNSS

Receiver	LR1110 GNSS scanner
GNSS	GPS, BeiDou
GNSS bands	L1
Accuracy (assuming - 130 dBm)	10-20m

WiFi

Receiver	2.4 GHz passive MAC scanning 802.11 b/g/n
Frequency band	2412 – 2484 MHz
Sniffer sensitivity (best-case)	-75 dBm
Accuracy	10 - 50m, depending on available infrastructure

BLE (Bluetooth Low Energy)

Version | capabilities	v5.2 | scanning & beaconing
TX power range	up to +8dBm
TX current consumption	n/a
RX sensitivity	-99.2 dBm@ (1 Mbit/s GFSK)

Near Field Comunication (NFC)

Standard	type 2, 14443 type A
Memory	144 bytes (usable for NDEF tada)
Operating Frequency	13.56 MHz

Sensors and peripherals

LED/Button

Status LED	Indication on network join status, battery level and reset indication (red/green)
Battery status	Short press
Waypoint	2 sec press
BLE pairing	5 sec press
Device reset	10 sec press

Accelerometer (3-axis)

Range	±2, ±4, ±8, ±16
Resolution	16 bit
Accuracy (typ.)	±20 mg
Movement detection logic	Interrupt based, 1 sec hold time

Location buffer

Buffer size	A maximum of 8'128 messages can be stored
Buffered messages	Positions and temperature
Offloading trigger	After confirmed messages

Integration and security

Truvami application

The truvami's application offers a range of powerful features, including receiving, decoding, storage, and efficient accessibility of the data for further processing. With the option of on-premise or cloud service installation, the application provides flexible deployment options to suit your needs. The application is built on a scalable and highly available architecture, allowing for independent scaling of microservices. When deployed on-premises, it can be horizontally and vertically scaled to meet the demands of your IoT solution.

Third party integration

SSO: Bring your own identity provider to truvami. We support OpenID Connect and SAML 2.0.
API: Integrate truvami with your existing systems. We provide a RESTful API for easy integration.

Data security

LoRaWAN: Securely connect your LoRaWAN devices to truvami. LoRaWAN® networks use AES-128 Encryption.
TLS: Securely connect your devices to truvami.

Device management

Configure device parameters such as position update rate, movement and accelerometer settings, and more to fit any tracking application. The firmware can be upgraded with Bluetooth, while the settings can be configured via LoRaWAN downlink.

Customization

Branding	Customize the look and feel of truvami to match your corporate identity.
Custom views	Create custom views to display the data in a way that suits your needs.
Bring your own map	Use your own map provider in truvami

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Truvami® is an IoT startup specialized in flexible end-to-end tracking solutions, based in Zurich, Switzerland. Our mission is to support enterprises in safeguarding their workforce and valuable assets through cutting-edge tracking technologies at smallest size. truvami offers a portfolio of different trackers that are designed to serve different use-cases in vertical markets like transport, logistics, industrial, construction, fleet- and animal tracking. The innovative multi-protocol approach combined with a dedicated geolocation engine allows seamless in- and outdoor tracking. Together with Truvami's cloud software platform, customers can easily integrate the solution into their existing IT landscape.

Get in touch today!

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