



Lansitec LoRaWAN Container Tracker Datasheet



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[Official product page](#)

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Container Tracker Product Family

One hardware concept, four upstream connectivity options

COMMON PRODUCT CONCEPT

The Container Tracker family shares the same rugged GNSS + Bluetooth device concept across the LoRaWAN, Cat-1, NB-IoT/LTE-M and NTN (under development) versions. The principal difference is the communication method used to send data and events upstream.

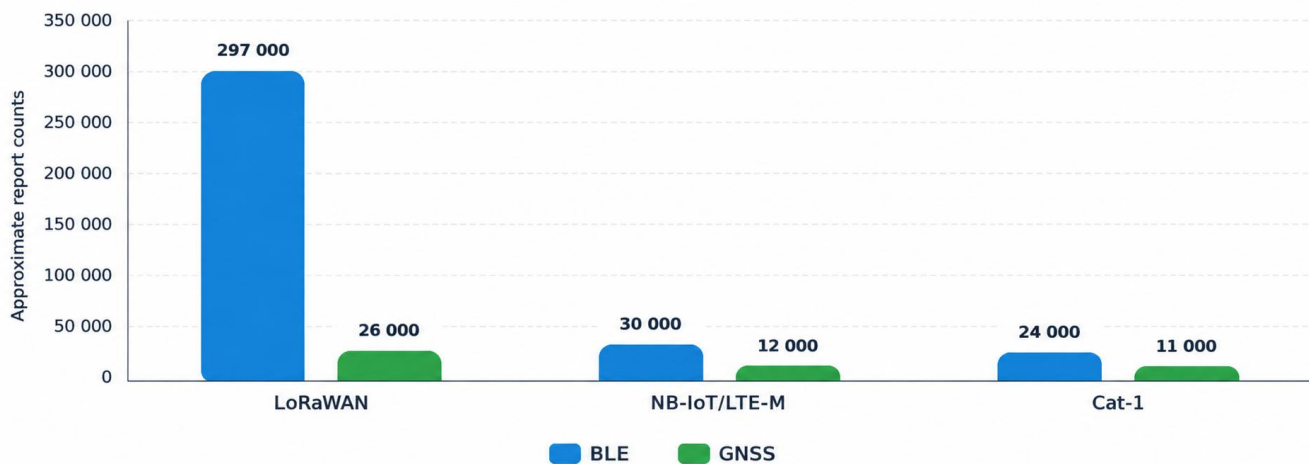


Shared platform

Battery 2 x 4000mAh Li/SOC12	Ruggedness IP68 enclosure	Positioning GNSS <2.5 m + Bluetooth	Data resilience 40 cached positions; up to 105 asset beacons
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Connectivity comparison

Network	LoRaWAN	Cat-1	NB-IoT / LTE-M
Application interface	LoRaWAN application payload	MQTT / HTTP(S) / TCP / UDP	MQTT / HTTP
SIM	No SIM	Nano or eSIM	Nano or eSIM
Approx. GNSS reports*	26,000	11,000	12,000
Approx. BLE reports*	297,000	24,000	30,000
Bluetooth formats	Bluetooth 5.0 / iBeacon / Eddystone / private	Bluetooth 5.0 / iBeacon / Eddystone / private	Bluetooth 5.0 / iBeacon / Eddystone / private
Positioning enhancements	GNSS + BLE	GNSS + BLE + AGPS + cellular positioning	GNSS + BLE + AGPS
Additional connectivity	-	-	LoRaWAN optional



* Comparative report counts are approximate reference figures for the same product family and are not a guaranteed service-life value. [Use the Battery Life Live Calculator to model the actual deployment scenario.](#)

Container Tracker - LoRaWAN at a Glance

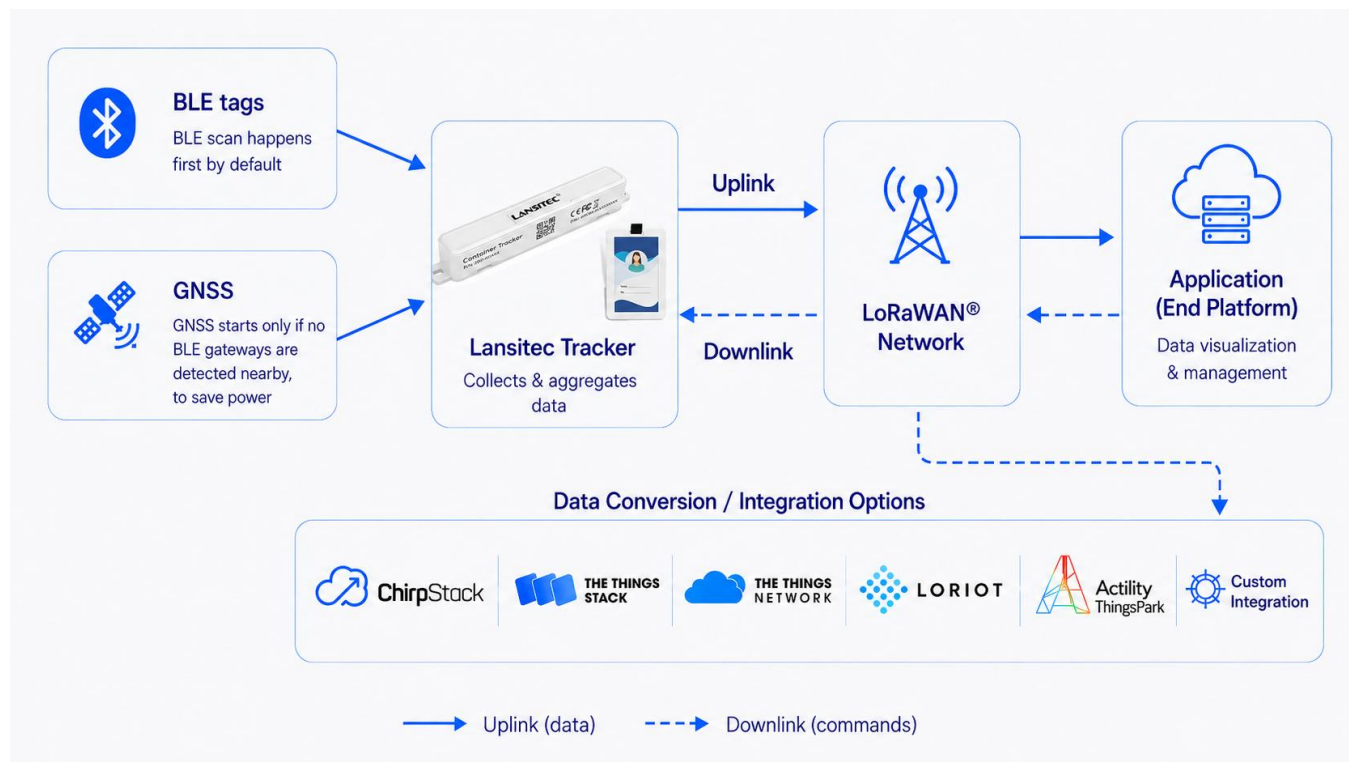
Connectivity & positioning

Parameter	LoRaWAN version
Protocol	LoRaWAN 1.0.2B, Class A
Activation	OTAA or ABP
Frequency regions	US915, AU915, EU868, EU433, AS923, RU864, KR920, IN865, CN470
LoRa TX power	0 to 20 dBm
LoRa sensitivity	-137 dBm @ SF12, BW 125 kHz
Bluetooth	Bluetooth 5.0, iBeacon
GNSS	GPS / BDS / GALILEO / GLONASS / QZSS / SBAS
GNSS accuracy	<2.5 m CEP under suitable conditions

Key points

- No SIM; private LoRaWAN infrastructure.
- BLE-first hybrid positioning with GNSS fallback.
- 3 s BLE scan; reports the 3 strongest positioning beacons.
- GNSS timeout: 3 min.
- Asset beacons: up to 105 stored/detected; max 15 per report batch.
- Offline cache: latest 40 positions.
- Default heartbeat: 1 h; default BLE position interval: 5 min.
- Default GNSS position interval: 30 min.

Data flow



Uplink data passes through the LoRaWAN network; downlink commands originate from the application/network side. Integration options include common LoRaWAN network-server ecosystems and custom integrations.

Payload testing: [Lansitec Live Decoder Calculator](#)

1. Product Specifications

LoRaWAN	Specification
Protocol	LoRaWAN 1.0.2B, Class A
Activation	OTAA or ABP
Frequency plans	US915, AU915, EU868, EU433, AS923, RU864, KR920, IN865, CN470
TX power	0 to 20 dBm overall; permitted values depend on the regional plan
Sensitivity	-137 dBm @ SF12, BW 125 kHz, 868/915 MHz
Typical urban range	>1 km; actual range depends on installation, container stacking and RF environment
Encryption	AES128
Bluetooth	Specification
Protocol	Bluetooth 5.0, iBeacon
TX power	-20 to +4 dBm, configurable in 4 dB steps
Sensitivity	-96 dBm
Positioning scan	3 s scan; RSSI averaged during the scan; reports the 3 strongest positioning beacons
Asset beacon capacity	Up to 105 asset beacons; maximum 15 per report batch
GNSS	Specification
Constellations	GPS, BDS, GALILEO, GLONASS, QZSS, SBAS
Position accuracy	<2.5 m CEP under suitable conditions
Typical acquisition	About 25 to 60 s with good outdoor satellite visibility
Positioning timeout	3 min
Sensors / interfaces	Specification
Accelerometer	Built-in motion sensing for autonomous tracking, movement duration and shock detection
Temperature option	Internal-housing measurement; sensor range -40°C to +85°C, 0.25°C resolution, approx. ±5°C in-housing accuracy
Magnetic sensing	Reed-switch power control plus TD magnet sensing for tamper and door-state detection
NFC / firmware	1KB NFC tag; FOTA over Bluetooth supported

2. Mechanical, Environmental & Power

Parameter	Specification
Dimensions	198 x 28.3 x 33.3 mm
Housing	PC + ABS
Weight	133 g
Ingress protection	IP68
Operating temperature	-20°C to +70°C
Storage temperature	-10°C to +30°C
Operating humidity	0% to 95% RH, non-condensing
Battery	2 x ER18505 Li/SOCI2, 4000mAh each, with lithium-ion capacitor
Standby current	15 µA
Maximum current	145 mA
FOTA / NFC	FOTA over Bluetooth; NFC tag capacity 1KB

3. Configurable Operating Parameters

This section lists the operating ranges and defaults relevant to product selection and system design. Payload byte layouts and hexadecimal command formats are intentionally kept in the separate Payload Specification.

Parameter	Range / resolution	Default / behavior
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Heartbeat report interval	30 s x n; n = 1...65535	1 hour; cannot be disabled
Bluetooth position interval	5 s x n; n = 0...65535	5 min; 0 disables the periodic BLE positioning interval
GNSS position interval	5 s x n; n = 0...65535	30 min; 0 disables the GNSS interval
Positioning mode	Periodic / Autonomous / On-Demand	Autonomous
Bluetooth positioning division	DIV = 0...255	0; divides a long position interval into DIV+1 BLE scan sections
Autonomous-mode acceleration threshold	Approx. 0.05 to 0.10 g in 0.005 g steps	0.10 g
Movement threshold	1 to 10 s continuous movement	10 s
Stationary threshold	1 to 60 s inactivity	60 s
Tamper protection time	0 to 255 s	60 s; 0 = no delay
Asset-beacon report period	0 to 255 min	30 min; 0 = OFF
Asset-beacon receive duration	0 to 10 s	3 s; should be longer than 2x beacon advertising interval
Extra asset-beacon batch interval	5 to 255 s	10 s when more than 15 beacons must be reported
Shock threshold	Approx. 0.05 to 0.55 g in 0.005 g steps	0.10 g; accelerometer checked every 2 s
Shock report interval	30 s x n; n = 0...255	0 = OFF in the configuration profile

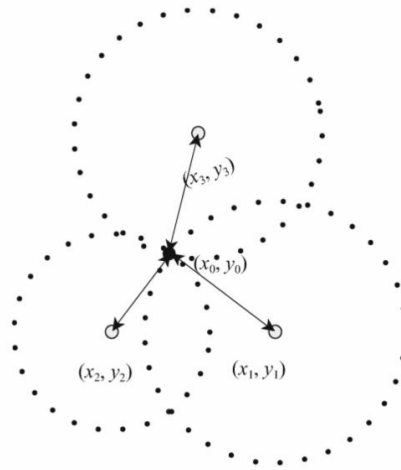
3.1 LoRaWAN regional operating limits

Region	Maximum listed TX power	Default DR
EU868	16 dBm	DR3
US915	20 dBm	DR2
EU433	12 dBm	DR3
AU915	20 dBm	DR3
CN470	20 dBm	DR3
AS923	16 dBm	DR3
KR920	14 dBm	DR3
IN865	20 dBm	DR3

LoRaWAN note. ADR is OFF / not configurable in the source firmware revision. US915 DR0 is not supported by this product profile because of its payload-length limitation. Select data rate and TX power according to the regional plan and network design.

4. Tracking & Positioning Operation

Function	Technical behavior
Bluetooth-first positioning	At the beginning of a positioning cycle the tracker listens for positioning beacons for 3 s. It reports Major, Minor and the averaged RSSI of the three strongest matching beacons.
Server-side location calculation	Known beacon coordinates and the reported RSSI values can be used by the application server to estimate the tracker position.
GNSS fallback	If no matching positioning beacon is received and GNSS is enabled, the tracker starts GNSS. A successful fix reports geographic coordinates and UTC time.
GNSS timeout	If no fix is available after 3 min, the positioning cycle terminates and positioning is retried according to the configured mode/interval.
Periodic mode	Runs the positioning process at fixed configured intervals. GNSS acquisition time can make the server-observed interval longer than the nominal setting.
Autonomous mode	Uses motion state from the accelerometer to decide whether a new positioning cycle is required, reducing unnecessary reports while stationary.
On-Demand mode	Starts positioning only after a server-side position request.
Positioning division	Long intervals can be split into additional BLE scan opportunities. Intermediate divided scans do not start GNSS when no beacon is found.



Conceptual BLE positioning logic; the application server performs the location calculation.

5. Asset Management, Motion & Sensors

Capability	Technical detail
Asset beacon collection	Reports nearby asset-beacon Major, Minor and RSSI. Up to 105 asset beacons are supported; a maximum of 15 are included in a single report batch.
Asset beacon batching	When more than 15 beacons are received in one scan/report cycle, remaining groups are sent at the configured extra asset-beacon interval.
Movement duration	Records how long the tracker moves or vibrates between confirmed heartbeat checkpoints. This can be used to estimate machine or asset utilization time.
Temperature	Reports an estimated internal housing temperature. The optional sensor is intended for device/environment trend monitoring rather than precision external temperature measurement.
Tamper detection	A magnetic TD sensor can identify magnet removal; a configurable protection delay reduces immediate/accidental alarms.
Door status	Magnet proximity and departure can be distinguished, enabling door open/close state monitoring.
Vibration / shock	Counts events above the configured acceleration threshold and can report the accumulated count at a configured interval.
iBeacon broadcast	Supports iBeacon advertising. Default UUID: F2-A5-2D-43-E0-AB-48-9C-B6-4C-4A-83-00-14-67-FD. Major/Minor derive from the last four DevEUI bytes by default. UUID, Major, Minor, interval and TX power are configurable.

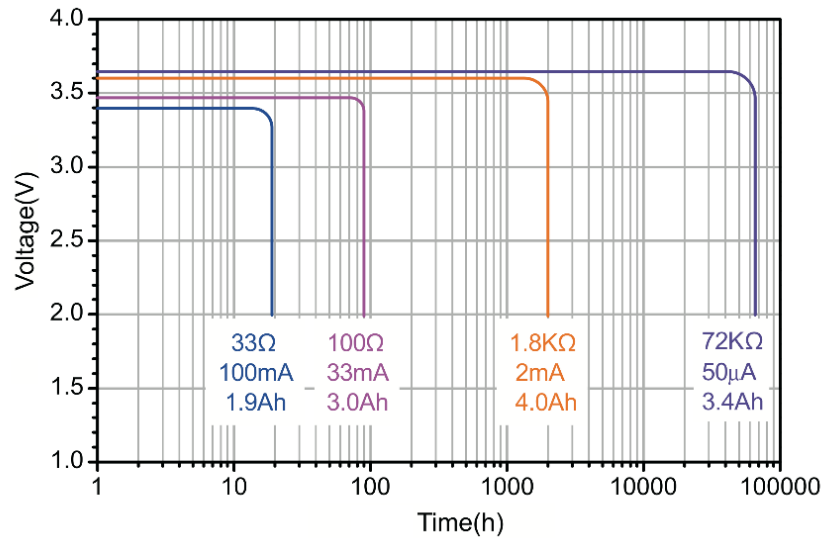
6. LoRaWAN Connectivity & Offline Resilience

- **Class A operation:** downlink reception follows the normal LoRaWAN Class A receive windows opened after uplinks; the heartbeat cadence provides recurring opportunities for server-side control.
- **Link supervision:** the tracker uses acknowledged heartbeat checkpoints to determine whether the LoRaWAN link remains available.
- **Default disconnect logic:** with the default confirmation cadence, loss of five confirmed heartbeat acknowledgements causes the device to consider the LoRaWAN link disconnected.
- **Rejoin strategy:** after disconnect, the tracker attempts to rejoin every 5 minutes for three attempts; if unsuccessful, it retries at the beginning of each hour until the network is recovered.
- **Position reporting during outage:** normal uplink position reporting stops while the network is unavailable, but positioning can continue locally.
- **Offline cache:** the latest 40 positions are retained in RAM. After reconnection, cached locations are prioritized for upload before normal live position reporting resumes.

Payload boundary. Exact confirmed/unconfirmed message behavior, message identifiers, byte fields and configuration commands are specified only in the Payload Specification. Contact us at contact@lansitec.com to request access.

7. Battery & Power Behavior

The tracker uses two ER18505 lithium-thionyl-chloride cells and a lithium-ion capacitor to support the current pulses required by radio and GNSS operation. Li/SOCI2 terminal voltage is load-dependent: it can drop during activity and recover to approximately 3.5 V while the device is idle.



Li/SOCI2 discharge characteristics used in the original technical datasheet.

- Battery voltage can remain near its nominal plateau for much of the service life and then fall quickly near end of life.
- Service is recommended when the reported battery voltage remains below 3.3 V for three consecutive heartbeat reports.
- GNSS acquisition conditions, BLE scan settings, LoRaWAN data rate/TX power, report intervals, retransmissions and network coverage materially affect service life.

For scenario-specific estimates, use the [Lansitec Battery Life Live Calculator](#). The report counts on the Product Family Comparison page are comparative reference figures rather than guaranteed lifetime values.

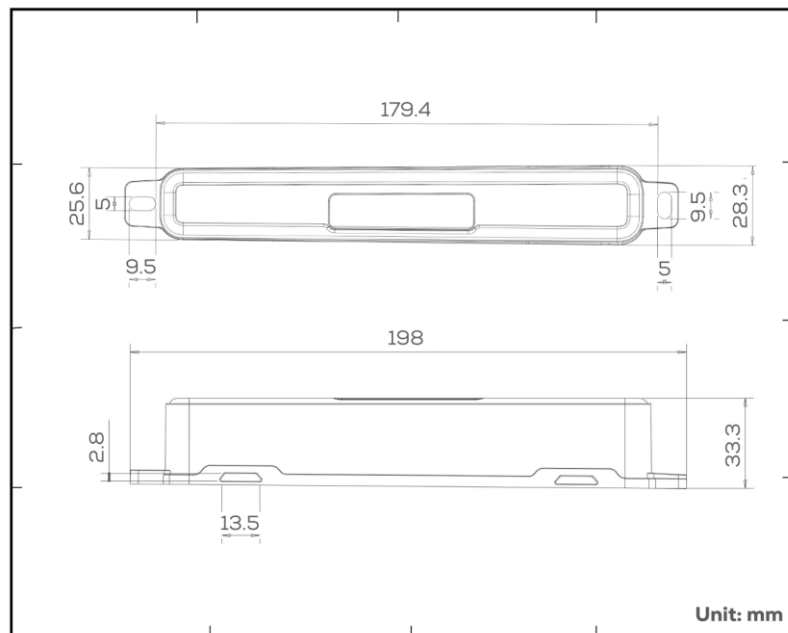
8. Integration Resources

Payload decoding and test validation: [Lansitec Live Decoder Calculator](#)

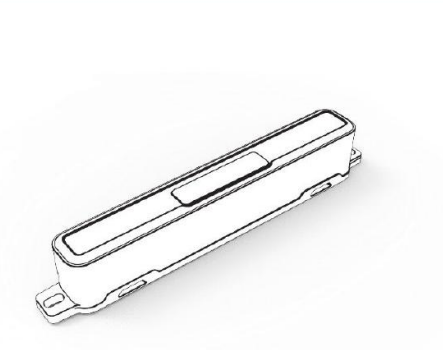
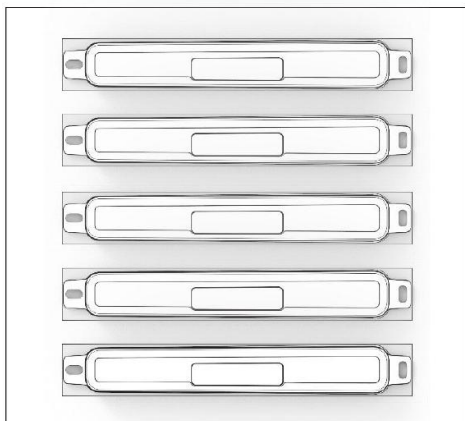
For complete uplink/downlink payload definitions and configuration command encoding, contact us at contact@lansitec.com to request the Payload Specification (Document Number 990-00121).

Installation, magnetic switch operation, LED/buzzer behavior, mounting, Bluetooth phone configuration and service procedures are covered in the public User Manual (Document Number 990-00120).

9. Packaging



Mechanical outline. Unit: mm.



Each packaging box contains: Five trackers

Standard packaging configuration: five trackers per box.

10. Ordering Information

Region / frequency plan	Part number
AS923	100-02394
IN865	100-02702
EU868	100-02393
US915	100-00160
RU864	100-02705
AU915	100-02706
KR920	100-02707
ID920	100-02708
CN470	100-02709
CN470-Ali	100-02710

For shipment preparation, logistics and related order information, see [Lansitec Shipping Process](#)

Reference Documents

- Lansitec LoRaWAN Container Tracker User Manual - Document Number 990-00120.
- Lansitec LoRaWAN Container Tracker Payload Specification - Document Number 990-00121 - contact us at contact@lansitec.com to request access.