

NextGen end-to-end supply chain eco-system integrating smart boxes, monitoring, Cloud solutions and AI.



Tec4med is a medical device manufacturer according to:

- FDA 21 CFR Part 820 / Part 11
- DIN EN ISO 13485
- DIN EN ISO 9001

Tec4med is focussing on the the needs of the pharmaceutical industry only and has established a full Quality-Management-System (QMS).

Tec4med runs its own laboratories for sensor calibration (ISO 17025) and packaging validation that is based on DAkkS standards.



ISTA 7D/7E
AFNOR



FDA 21 CFR Part 11
FDA 21 CFR Part 820



DIN 58345
DIN 58371



FCC



EMV
RoHS



UL US
UL CA



IEC 61010 / 9001
IEC 13485 / 62368



RCM Tick



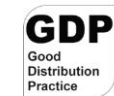
UN3373



IATA



NIST



GDP

Our connected devices meet the requirements of the logistics industry in a comprehensive ecosystem.



Tec4Cloud / Tec4App

Logistics dashboard including shipment, fleet and warehouse manager, 3rd party hardware integration, whitelabel functionality, automated updates, alerts and data archive, smart API integration for full data utilization. Scanner of Beacons and labels for automation.

(Smart)Beacon

BLE data logger of temperature, humidity, shock, BLE 5.0 data-logger supporting external probes [LN2, Cryo].

SmartTag

Real-time tracking 5G-device for full real-time supply chain visibility worldwide, also available with probe

SmartHub/Lock

Real-time tracking 5G-/Wifi-device, tag and gateway for full mobile real-time supply chain visibility / automation worldwide, also available as a digital lock/seal.

NelumBox

Specialty thermal transport and storage solution [0-70°C] for on-site and mobile use with IoT functionality.

PassiveSystems

Passive parcel shippers for multi- and single-use, high- and low-performance

All Tec4med products work as stand-alone products but can also be combined in a full eco-system.



Device properties

- **BLE 5.0 Long-Range** device
- Compatible to **SmartHub / Lock or Tec4App**
- **Internal sensors:** Temperature, humidity, shock
- **External sensors:** Pt-100 4-wire temperature probes (DryIce, LN2), digital I2C probes
- **1 year+** of battery runtime
- **90 days** of data memory
- Always on-mode, plug&play



Device properties

- **5G LTE CAT M1 / 2G** for global real-time connectivity in more than 240 countries
- Sensors: temperature, humidity, shock, tilt, geo-location, access
- **BLE 5.0 Long-Range** Gateway: connects to up to 50 beacons simultaneously
- Precise geo-positioning through **GNSS** (GPS, GLONASS, GALILEO), **Wifi**- and **mobile** network triangulation
- **4.2" EINK** screen for electronic shipment labels and multifunctional use-cases
- **LEDs & buzzer** for on-site alerts / events



Different versions for different use-cases

SmartHub Li-Po	<u>Lithium-Polymer Battery</u> 44.4 Wh 40 days of runtime [1h/10min]	<u>USB type C / quick charger</u> Charging in <8/<3 hours Stationary use possible	<u>Magnets for wall-mounts</u> Plug and play installation with with magnets
SmartHub Alkaline	<u>Alkaline Battery</u> 12x 1.5V Alkaline AAA 30 days of runtime [2h/10min]	<u>Removable Alkaline batteries</u> No port, removable lid Non-dangerous goods air-freight	<u>Magnets for wall-mounts</u> Plug and play installation with with magnets
SmartLock Li-Ion	<u>Lithium-Ion Battery</u> 48Wh 40 days of runtime [1h/10min]	<u>USB type C / quick charger</u> Charging in <8/<3 hours Stationary use possible	<u>Locking functionality</u> Locking functionality for wall- Mount or smart box integration



All three versions are compatible to the Tec4med eco-system such as the beacon series, Tec4App and Tec4Cloud.
The system is a plug&play system and has an easy-to-use setup.



Device properties

- **5G LTE CAT M1 / 2G** for global real-time connectivity in more than 240 countries
- Sensors: temperature, humidity, shock, light, geo-location
- Available as **multi-use** [M], **single-use** [S]
- Optional **probe** (down to -200°C)
- Up to **120 days** of battery runtime
- **Segment** screen for most important details



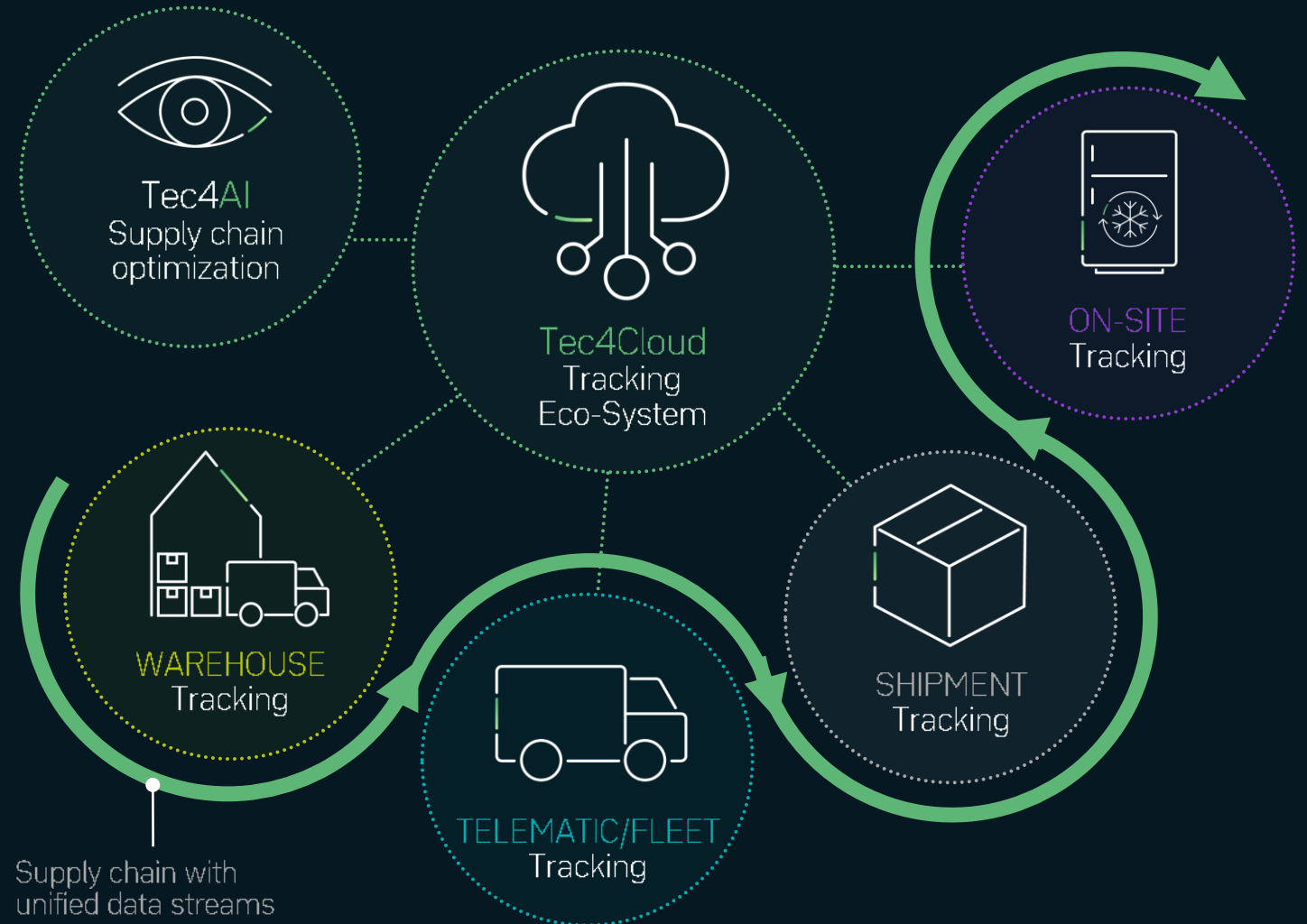




The Tec4med tracking eco-system enables end-to-end supply chain visibility and optimization powered by AI.

Tec4med TRACKING ECO-SYSTEM

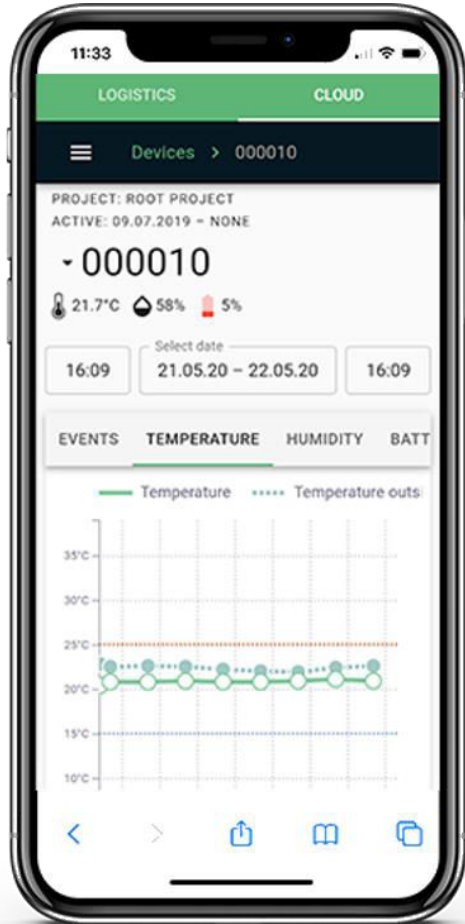
- Digitalization & transparency of all processes, due to unified data streams along all parts of the supply chain in one platform
- Plug&play easy-to-use integrated hardware and software infrastructure
- Time and cost savings through full automation of the supply chain
- Optimization of the supply chain through intelligent data use and predictive analytics
- Fully certified pharma grade processes



Today

- 1.) Dashboard, shipment-manager, site-manager, project-manager
- 2.) Browser-based, accessible from anywhere
- 3.) Multi-channel alerts: browser, email, app, text message (SMS)
- 4.) 3rd party device integration
- 5.) White label functionality
- 6.) Deeplink functionality
- 7.) FDA 21 CFR Part 11 compliant





Tec4App Features:

- 1.) Full Tec4Cloud mobile integration
- 2.) Device ID – shipment label assignment
- 3.) Digital PoD (signature), foto upload
- 4.) Device memory read-out (incl. bulk)
- 5.) Gateway functionality for beacons
- 6.) On-device alerts and events



Use-Case I-a: Cryogenic Shipments

- Cryogenic Shipments [-196°C] with LN2-tanks
- CryoBeacon with LN2 probe (300mm husk, for up to -200°C)
- Data-readout via Tec4App
- Data-readout via SmartHub [optional]
- SmartTag M + probe [optional]

Potential clients: Laboratories, veterinary, biotech, big pharma, pharma logistics, CROs



Use-Case I-b: DryIce Shipments

- DryIce Shipments [-80°C] with DryIce parcel, pallet or container [ULD] shippers
- CryoBeacon with DryIce probe (100mm husk, for up to -80°C)
- Data-readout via Tec4App
- Data-readout via SmartHub [optional]
- SmartTag M + probe [optional]

Potential clients: Vaccine manufacturer, laboratories, veterinary, biotechs, big pharma, pharma logistics, CROs



Use-Case I-c:

Temperature-controlled ULDs

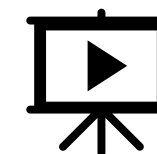
- a. Temperature-controlled ULDs (active or passive) at -20°C, 2-8°C, 15-25°C
- b. Multiple TempBeacons at the inside at hot- and cold-spots for temperature mapping
- c. Data-readout via. SmartHub (outside)
- d. Backup-readout via. Tec4App (optional)

Potential clients: Big pharma, vaccine manufacturer, biotechs, pharma logistics, CROs, CDMOs, airlines, network carrier



Temperature-controls parcel

- Potential clients: Big pharma, vaccine manufacturer, biotechs, pharma logistics, CROs, CDMOs, airlines, network carrier

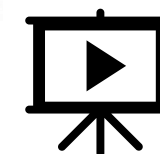
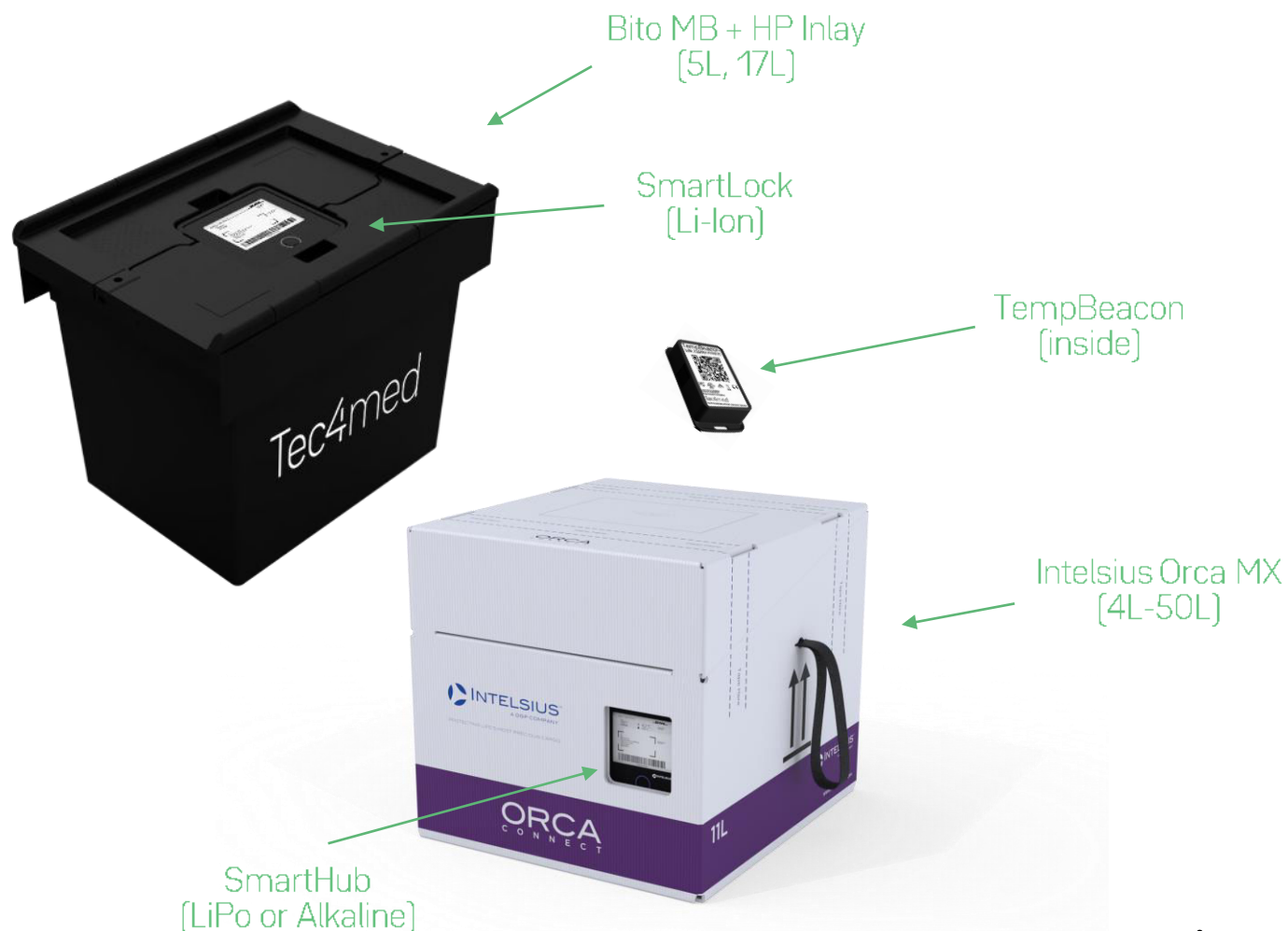


Use-Case I-e:

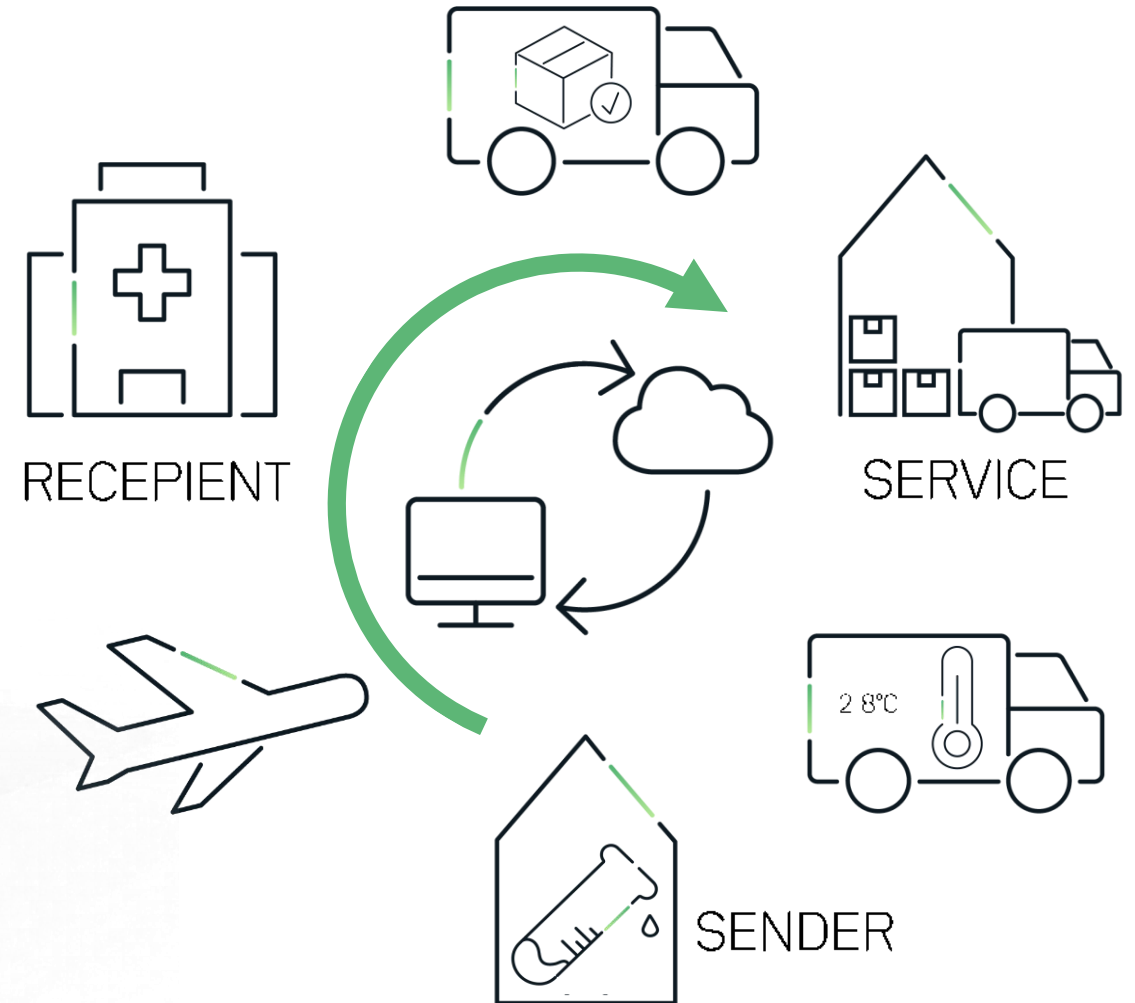
Temperature-controlled parcel

- a. Temperature-controlled parcel (passive) at -20°C, 2-8°C, 15-25°C
- b. TempBeacon at the inside for internal temperature readout
- c. Automated data-readout via. SmartHub
- d. Digital seal or lock via. SmartLock

Potential clients: Big pharma, vaccine manufacturer, biotechs, pharma logistics, CROs, CDMOs, airlines, network carrier



Click here
for a video
demo!



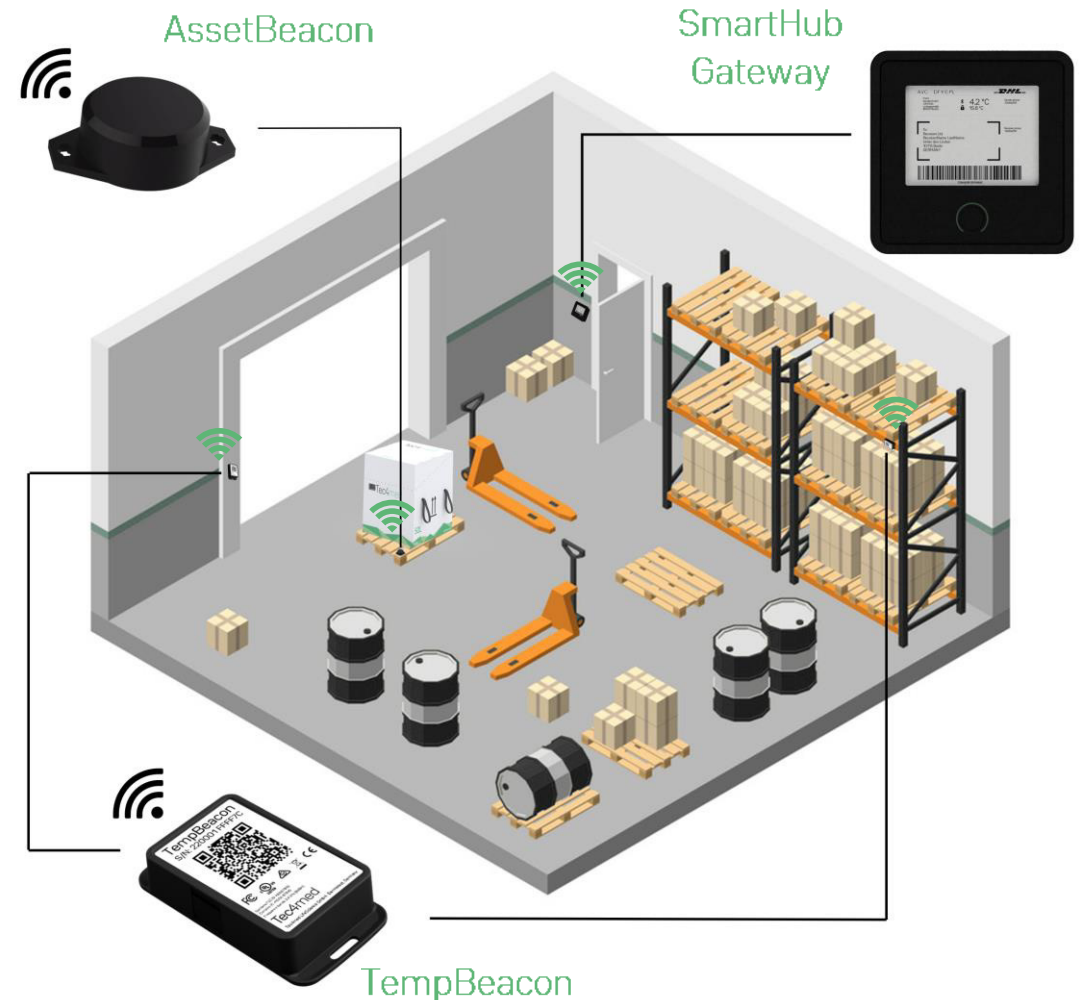


Use-Case II-a:

Warehouse temperature monitoring

- Temperature-controlled warehouses at -80°C, -20°C, 2-8°C, 15-25°C
- TempBeacon at various cold- or hotspots within warehouse
- Temp- or CryoBeacon at various temperature-controlled zones [e.g. deep-freezers, refrigerators]
- Automated data-readout via SmartHub gateway

Potential clients: Big pharma, vaccine manufacturer, biotechs, pharma logistics, CROs, CDMOs, network carrier



Use-Case II-b: Site monitoring

- a. Temperature-controlled site [e.g. pharmacy] at -20°C, 2-8°C, 15-25°C
- b. TempBeacon at various cold- or hotspots withing location
- c. TempBeacon at various temperature-controlled zones [e.g. deep-freezers, refrigerators]
- d. Automated data-readout via. SmartHub gateway

Potential clients: Pharmacies, hospitals, laboratories, veterinary, blood banks





Use-Case III:

Telematics and fleet monitoring

- a. Temperature-controlled fleet (e.g. caddy) at 2-8°C, 15-25°C
- b. TempBeacon at various cold- or hotspots withing vehicly [caddy, transporter, trailer, truck]
- c. TempBeacon at loaded load-carriers [e.g. Bito boxes] within vehicle
- d. Automated data-readout via. SmartHub gateway

Potential clients: Pharma logistics, network carrier



We are glad to
discuss the details
with you in person.



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