

Telic

Telematik & Telemetrie

Picotrack Endurance

The Asset Tracker
with ultra-long stand-by time

Features, Applications and benefits



Picotrack Endurance

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The Picotrack Endurance

can be used for „ultra long term“
power independent applications in harsh environment

Typical installations on:

- Containers
- Trailers and Swap Bodies
- Wagons
- Construction machines



Unique selling propositions (USPs)

- Battery life time for up to 5 years
- Small/Flat size: 23x13x3cm
- Water protected and robust enclosure for outside installation (ASA material)
- Best in class GPS-performance
- Almost no maintenance effort
- Made in Germany



Available versions:

Picotrack Endurance Primary

For all applications with medium to low tracking frequencies and the request of an ultra long battery stand by time

- Containers
- Wagons
- Valuable Assets

Picotrack Endurance Rechargeable

For all applications with higher tracking frequencies with a time to time option to recharge the battery

- Trailers
- Swap Bodies
- Construction machines

Advantages of Picotrack Endurance Primary

- Ultra long stand-by time
- High temperature range for operation
- Extremely low self depletion
- IP69k housing
- Optional replacement of battery in case of depletion

Advantages of Picotrack Endurance Rechargeable

- In case of higher tracking frequency
- IP67 connector for configuration and charging (USB-power supply)
- No logistics effort to replace batteries

Business cases

- Get the information where your asset is located together with the actual status information (battery, motion)
- Follow the route of assets at land and on sea (if GPS is available)
- More safety for valuable goods/ transports
- Supervise driving hours and routes of trucks that carry the assets
- Decrease the effort to find containers within the harbour
- Find the asset in case of theft or loss



Co-operation with telematic service providers

**Picotrack
Endurance**



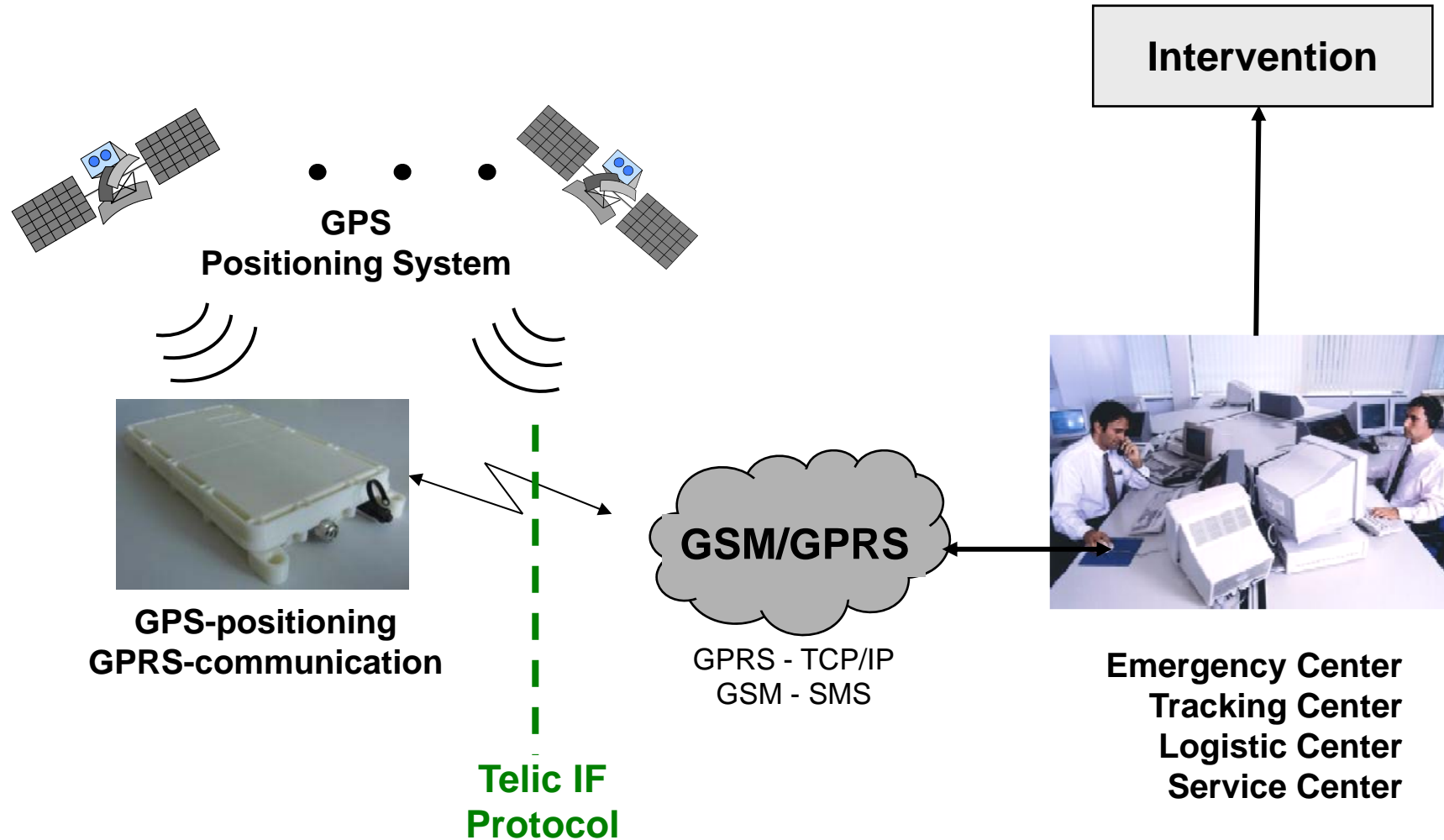
**Software or
Tracking Service from
Telic Partner**



**End customer
Solution**



Picotrack system integration



Sleep Mode by time period:

- After the periodical event Picotrack falls asleep
 - Time frame for sleep mode is configurable
 - Device wakes up before sending periodical event to acquire the actual GPS-position



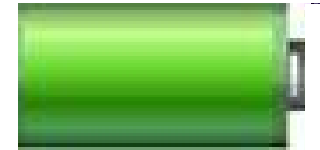
Sleep Modes with Motion Sensor:

- The device falls asleep when it has not moved for a specific time
- Device wakes up as soon as motion detector notices a motion (9 profiles)
- Device can be configured to fall asleep during motion (different profile)
- Device wakes up as soon as container is standing still (to inform, where an asset has been placed)

Advantage: => Save energy and enlarge battery stand by time

Battery life time examples

Battery life time examples for Picotrack Endurance Primary:



Used for Ultra-Long Stand-by requirements with long tracking intervals

2-3 events per day \Rightarrow approx. 5 years

Number of tracking events with GPS/GSM active
w/o changing the battery (full wake up cycles): \Rightarrow ca. 7.000 Events

All numbers under good GSM/GPS reception conditions and temperatures around 20°C

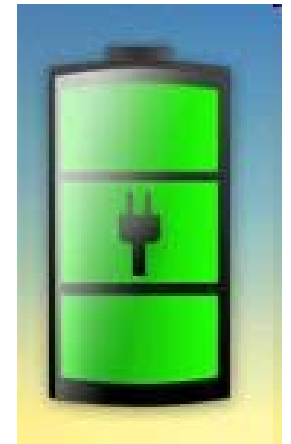
Battery life time examples for Picotrack Endurance Rechargeable:

Used for higher frequencies of tracking intervals

10-15 events per day => approx. 1 year before recharging

Number of tracking events with GPS/GSM active

w/o recharging the battery: => 5.000 Events within first year



All numbers under good GSM/GPS reception conditions and temperatures around 20°C

Bundling Mode

Description

- Events will be stored without activating GSM to save energy
- collects a configurable number of events
- activates GSM and sends all collected events during one GPRS-connect

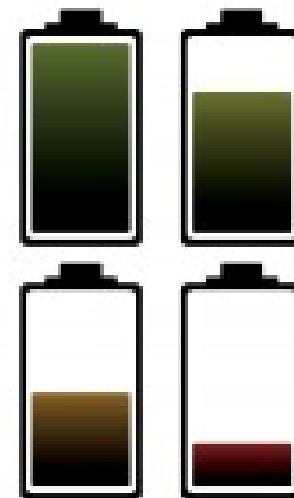
Benefits:

- Saves up to 50% power!
- Extends the standby time and/or number of events without recharging/replacing battery



Influencing factors for the battery life time

- Tracking frequency (configurable)
- Use of Bundling Mode
- Availability of GPS
- Signal strength of GSM
- Heat and coldness
- Go-to-sleep time after tracking (configurable)



Tracking options:

- Positioning with time stamp, e.g. once per day
- Device sends information about the last location, where the asset was placed
- Device informs as soon as asset is standing still for a while
- Device informs as soon as asset starts moving again



Tracking on sea

GPS Tracking information can get collected while the cargo ship is on the sea. As soon as the ship approaches to the coast, the tracking data will be transmitted via the GSM network to the central server => Works only when GPS is in view!



Picotrack Endurance

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Robust enclosure

Protected against :

- Direct spray water
- Heat and Coldness
- Mechanical influences from outside



General features:

- High End material: ASA
(Acrylnitril / Styrol /Acrylester-Polymer)
- IP 67 for „Rechargeable“ version
- IP 69K for „Primary“ version
- Protected against weathering for over 10 years
- Impact resistant against typical operational demands



Ease of installation

- Time saving installation (only 4 screws)
- No connection cables needed
- Antennas integrated in device (all in one!)
- No installation effort for antenna cable
- LED Debug Mode to calibrate Motion sensor during installation according to required use case



Latest GPS technology

- 66-channel High sensitive GPS receiver

Benefits:

- Low power chip technology
- Faster first fix in difficult environment to extend battery stand-by time



Network Preconfigurations

Description:

- The Network Operator PLMN-list with preferred roaming partners can be activated
- Support of Operator IP-Parameter pre configuration (APN, User Name, Password)

		SIM List			
		26201	26202	26203	26207
Provider List	20404	1	0	0	0
	20408	0	0	1	0
	20412	0	0	0	0
	20416	2	0	2	1
	26001	3	3	5	0
	26002	0	1	0	0
	26003	4	2	3	2
	21401	0	0	4	0
	21403	5	0	6	0
	21407	6	0	0	3

Benefit:

- Save money by choosing preferred roaming partners
- If no operator is available, data will be stored and uploaded later
- GPRS parameters can be pre configured depending on the SIM card
 - Avoids configuration of APN settings in the field if different network operators will be used

Robust SIM card holder

Benefit:

- Solid function in harsh environment (No SIM disconnection)
- Avoids GPRS reconnections caused by vibrations
- No unnecessary GPRS reconnection fees

Application:

- Vehicles that are affected by vibration and shock, e.g.:
 - Trucks
 - Wagons
 - Swap Bodies
 - Pallets
 - Transport boxes



DOTA – Download over the Air:

- Update Picotrack Endurance with new features & functions from anywhere
- Easy and fast download via FTP, no extra software necessary
- Command to check the successful update

Advantage:

- Automatic update support without touching the device
- Saving time money and effort



Watchdog Features:

3-Level Watchdog system on board processor

- In case of GSM connectivity issues, reset of GSM without stopping GPS
- In case of GPS reception issues, reset of GPS without stopping GSM
- Up to a complete power cycle



System Function	3
Data Function	2
HW-Function	1

Very important: Because your assets are often far away and out of reach for technical service

Made in Germany



Benefit:

- High quality level of products
- Low distance between headquarters and manufacturing plant
- Fast intervention into manufacturing process possible if necessary
- Lower lead times
- More flexibility in terms of project specific variants

Applications:

- Application with quality and stability approach



Additional Picotrack Endurance Features

Feature	Benefit
<ul style="list-style-type: none">• Sending Priorisation of events• Activation of 15-digit IMEI number for volume projects• Bundle Counter (No. of messages to be bundled before GSM-activation)• Sleep during motion with „standing still“ detection event• Configurable Stationary Sensitivity offset• Configuration of regular status event during „Sleep Mode“ without GPS	<ul style="list-style-type: none">• Security message prioritisation in queues• To avoid any repetition of serial numbers at server side• To save data cost (less GPRS-connects) and energy consumption• To save energy even during motion of tracked assets (e.g. Wagons)• To differentiate the sensitivity between „standing still“ and „motion“ (Hysteresis)• To have regular „still alive“ messages with lowest energy consumption

Further versions optional available

Requirement for such a project:

- Business case has to fit
- A significant quantity has to be behind such a project

Possible options, eg:

- External antennas
- Additional inputs and outputs
- interfaces for sensors (e.g. 1-wire)
- UMTS

Prices:

- Prices only on request
- Prices not in price list

Summary

- Can be used to track assets such as containers, wagons and transport boxes
- Ultra long Battery life time for up to five years
- Ease of installation
- Download over the air (DOTA)
- Made in Germany



Picotrack features

- **Compact** 23x13x3cm
- **Weight** <500 Grams
- **Localisation** GPS-tracking (66 channels)
- **Communication** via GPRS (TCP/IP or UDP/IP connection)
- **Configuration** via SMS, GPRS
- **Charging** USB 5V / 500 mA („Rechargeable“ version only)
- **maintenance** remote configuration or SW-download
- **fully integrated:**
 - SIM-card
 - LiPo battery 13,8 Ah **or** primary cell 14 Ah
 - Internal GSM/GPS-Antenna
 - Motion sensor
 - Position memory



Designed to work! – based on latest technology



- **GPS:** MediaTek (22 tracking / 66 acquisition channel receiver), also used by Garmin handhelds
- **GSM:** latest QUAD band GPRS module from Telit
- **Antennas:** High performance GPS-patch antenna (25mm x 25mm)
- **Battery:** Rechargeable Lithium Polymer battery or primary cell
- **Processor:** Low power CortexM3 controller
- **Housing:** robust ASA material