Telic

Solutions Start Here

Picotrack 4G User Manual

29.10.2020

General document information	
Title	EN_UserManual_Picotrack 4G
Date	29.10.2020
Author	Regina Kniegl
Contact at Telic AG	info@telic.de
Document version	1.2

Content

Table Overview

Figure Overview

Introduction

The Picotrack is a small sized tracking device which is well suited for tracking valuable goods and shipments. The Picotrack is suited for a wide range of asset tracking applications including the following (this list is not exhaustive!):

- Tracking of valuable goods and shipments (Product prototypes, cash transport, high value products)
- Tracking product packaging (e.g. pallets & crates...)
- Mobile industrial equipment

Because of the multitude of possible application we cannot list them all. Therefore we will only refer to installation scenarios as they occur in asset tracking applications.

Picotrack: For all applications where smallest dimensions are essential and a longer battery lifetime is required.
Picotrack IP69K: The Picotrack is provided inside an IP69K grade casing, which is can also be supplied with a magnet (as optional accessory) for quick installation on metallic surfaces. It is suited for all applications where long battery lifetime is needed and the device is subjected to harsh environmental conditions.

Delivery content

The standard delivery includes the Picotrack device. The delivery could include furthermore some of the following accessories, depending on the details of your purchase order:

Accessory Name	Oder code	Functionality	Picture
USB-A / Micro-USB-B-Cable	17005	Use this cable only to charge the device (but not for configuring it).	
Cable for Config- Tool Picotrack	16207	Use this cable to charge or to configure the device via the Telic Config-Tool.	
Picotrack power supply w/o USB-cable	17003	Use this power adapter to connect the device to a mains supply.	
Picotrack cigarette lighter charger w/o USB-cable	17004	Use this adapter to connect the device to a cigarette lighter.	
Magnet plates for Picotrack IP69K	17020	Used for installation on metallic surfaces.	

Table 1: Accessories List

Technical Data

Components	Picotrack	Picotrack IP69K
Dimensions	57x38x19 mm	95x50x39 mm
Environmental Rating	N/A	IP69K protected
Connectors	Charging cable	
Status LEDs	3 indicators for the states: Cellular, GPS, On/Off, battery charging/full, DOTA, On/Off button…	
Cellular/GPRS module	Quadband-LTE-Module with 2G fallback at 850 MHz / 900 MHz / 1800 MHz / 1900 MHz	
GPS Sensitivity (Tracking)	-165 dB	
GPS Acquisition Time	Cold ~ 34sec ; Warm ~ 33 sec ; Hot < 1 sec	
GPS Tracking / Acquisition Channels	22/66 channel	
Battery	1320 mA/h	
Message Logging Capacity	2800	
Cellular/GPS antennas	Both integrated	
Operating Temperature	-20°C to +60°C	
Recharging Temperature	0°C to +45°C	
Supply voltage	5V USB	
Certificates	RoHs, CE certificated	

Table 2: Technical Data

Operation Setup

The operation set-up of the Picotrack device can be realised in a few quick steps.

	Please take proper measures for ESD protection (e.g. electrical connection of the body to ground) to make sure you do not destroy internal electronics! Repair of ESD damages caused by user's negligence will not be covered by Telic's warranty. Electrostatic discharge (ESD) is the sudden and momentary electric current that flows between two objects at different electrical potentials normally caused by static electricity.

Opening the device

Open Picotrack housing by screwing off the housing (as shown in the following Figure). The SIM card holder is under the battery and allows to slide-in and to fix a standard Mini-SIM card. Be careful when moving the battery not to pinch the battery cable.

Figure 1: How to open the device

Inserting the SIM Card

A working SIM card from a suitable network provider must be correctly inserted in order to the device operates correctly.

	The messages of the Picotrack are transmitted via the mobile GSM network. Therefor you need a standard 3 Volts or 1.8 Volts SIM card. Please give preference to post-paid SIM cards!

Please put the device in front of you on your desk so that you can slide-in the SIM card (as shown in the following Figure); the gold contacts of the SIM card must be facing down. The SIM card must be pushed in the direction of the arrow, until it snaps into place.

Figure 2: How to insert the SIM Card

	The opposite cover of the housing, in which the GPS receiver is embedded, should not be opened, to avoid a contamination of the receiver which may lead to a reduction of receiving quality (should you be forced to clean the pad sometime, please do so using pure alcohol).

Before the Picotrack logs into the mobile GSM network, it checks whether the used SIM card is PIN free. If it is PIN free, it will start normal operation.

If the SIM card is not PIN free, it has to be assured, that the PIN is set to “0000” before it has been inserted. The PIN can be changed e.g. with a normal mobile phone to “0000”.

To speed up the log-in into the mobile network, the SIM card should not contain any phone book entries.

Closing the housing

	Make sure that the battery is not damaged or squeezed by the holder of the housing while closing the device, and that the battery cable is not pinched or kinked. Avoid any stress on the micro USB connector when it is plugged in the Picotrack. In the worst case, the connector of the Picotrack board could be damaged. Telic’s warranty does not cover the repair of this type of damage.

Close the device again and take care that the housing covers fit together tightly and properly.

Switching the device ON and OFF

To switch the device ON: push the red button until the green LED of the left GSM-indicator lights up.

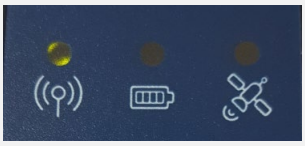
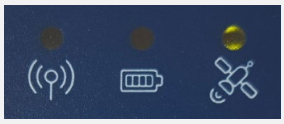
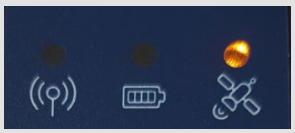
To switch the device OFF: push the red button twice in quick succession. Note that the green LED of the left GSM indicator will continue to light-up for a while, even though the switch-off process is on its way.

Figure 3: How to switch on and off the device

	Pushing the red button will always be confirmed by the red LED in the centre indicator, which means it will be illuminated as long as the button is being pushed.

Status Indicators

Internally the device has three status indicators each indicator has 2 or 3 different colored LEDs closed grouped together.

Left indicator: Cellular status	Middle indicator: Power supply status	Right indicator: GPS status
The left indicator reflects the GSM status and also, whether the device is switched on.  When the LED is off, the device is switched off.	The middle indicator reflects the status of the integrated battery as well as of the DOTA download.  The middle LED being off does NOT mean that the device is switched off. It only indicates that the device is not connected to external power supply.	The right indicator reflects GPS reception as well as the device reset status.  Off: GPS is not switched on
 Permanently on: GSM is switched on, but no GSM network is available. Blinking once: the device is logged into the GSM network. Blinking twice: TCP/IP connection to the server has been established Permanently on: GSM is switched on, but no GSM network is available.	 Permanently on: the device has external power supply and the battery is fully charged.	 2 times blinking: 2D- Fix (no valid height and the position may be imprecise 3 times blinking: 3D (GPS data are complete
	 Permanently on: the battery is currently charging. The middle indicator works identically if the device is in sleep mode; just the left and the right indicators are off.	 1 time blinking: position acquisition not possible

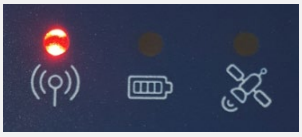
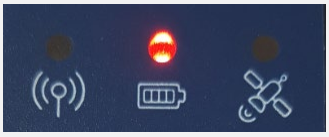
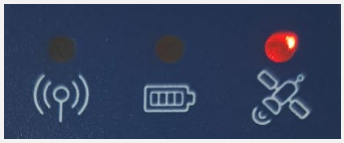
		
Slow double blinking: the SIM card is not readable (e.g. if not correctly inserted into the SIM cardholder or others). After a certain period of time the Picotrack will switch-off completely (as it would be after pushing twice the red on/off button).	The red LED is permanently on during the whole DOTA (Download Over The Air) procedure.	About 5 seconds red during device reset.

Table 3: Status indicators

Troubleshooting hints

The device doesn't show any sign of life

Possible issue source	Trouble shooting
The battery is not connected to the PCB.	Connect the battery to the printed circuit board (PCB).
The battery is empty.	Charge or replace the battery.
The device is not switched on.	Press once the red on/off button to turn the device on.

Table 4: The device doesn't show any sign of life

The device doesn't log into the mobile network

Possible issue source	Trouble shooting
The device isn't in a GSM covered area	Please check whether there is GSM reception in this area (e.g. using a cell phone) and move eventually to another area.
The position of the Picotrack device is not favourable.	Choose another place in the vehicle which might be less shielded.
The SIM card in the Picotrack device is new and has not yet been activated	Please check, whether the SIM card is already activated. This can be done e.g. by putting the SIM card into your cell phone and checking, whether your cell phone is able to log into a GSM network.
The SIM card has been locked by the provider	Please check whether the SIM card is locked. This can be done e.g. by putting the SIM card into your cell phone and checking, whether your cell phone is able to log into a GSM network. If this not the case, then please try to make a phone call. If you are successful, the SIM card is definitely not locked.
The prepaid bonus is exhausted	Please recharge the SIM card in the Picotrack device.
The prepaid SIM card is no longer valid	If they aren't recharged on a regular basis (often after 12 or 24 months). In this case usually you have to buy a new SIM card.
The PIN code of the card has not been deactivated or is not set to "0000"	Please remove the SIM card from the device and check the PIN code. The Pin code has to be deactivated or set to "0000" After a triple wrong entry of the PIN, unblocking the SIM card requires the PUK.
The SIM card hasn't been inserted into the SIM card holder in the correct way	Please check the correct position of the SIM card in the card holder.

Table 5: The device doesn't log into the GSM network

The device doesn't log into the GPRS network

Possible issue source	Trouble shooting
The GPRS service is not yet activated	Please ask your provider, whether the GPRS function is already activated for the SIM card in use.

Table 6: The device doesn't log into the GPRS network

The device doesn't send messages

Possible issue source	Trouble shooting
Battery of the device was completely drained (e.g. after several weeks of storage)	Please recharge the device and wait for 3D GPS fix to synchronise the internal real time clock.

Table 7: The device doesn't send messages

The device doesn't receive GPS data

Possible issue source	Trouble shooting
The position of the device is not favourable for the GPS reception	Please check, whether the device has the indicators facing up and a clear view of the sky.
The GPS receiver has no free sight to the sky	Please be aware, that a GPS receiver operates most efficiently when there is a clear view of the sky. Please ensure that the device side with the LEDs has free view to the sky.
Your asset is placed in an unsuitable location	Please consider that a GPS reception operates most efficiently when there is a free view of the sky. If GPS reception is not available (e.g. due to location of the asset inside a warehouse), considering using the Device-based Wireless Positioning feature as an alternative positioning method (see Section 0).

Table 8: The device doesn't receive GPS data

Further hints regarding sources of errors are indicated through the 8 LEDs of the 3 indicators, which are easily visible from outside. You will find details of the meaning of the different colours and blinking signs in Section 0 ("Status Indicators").

Basic Features

The device can be configured either via serial cable by using the Telic Configuration tool or remotely via SMS and GPRS. Please contact the Telic support team to receive more details about the configuration procedure.

Event Types

The Picotrack's primary task is to transmit GPS positioning data as well as additional status information via a TCP/IP connection to the tracking server. If a message can't be transmitted, it will be stored in the device for transmission at a later point in time. There is a storage capacity of about 1.000 position messages. The following events will generate a positioning message which always contains the GPS position:

Time event: the end of a time period of x seconds (x being configurable).

Distance Event: after a distance of x meters (straight line distance to the previous event) in any direction (x being configurable) has been travelled.

Angular change Event: a direction change of a configurable minimum angle in x degrees (x being configured) at a configurable minimum speed of y km/h (y being configurable).

Periodic Wakeup / Routine Message: even when the unit is in stand-by mode, the message is generated either every x hours (x being configurable) or at a fixed time (configurable) during the day

Power event: Switching on or off the device.

Connection Establishment Procedure

The GSM and GPS modules will power up after switching on the Picotrack device. After logging in into the GSM network the Picotrack will attempt to establish a GPRS communication link. Finally, a TCP/IP connection to the tracking server will be established to transmit the event messages.

The selection of the GSM network operator will take about 1 minute, plus the time to build up the GPRS- and TCP/IP-connections to the tracking server. Therefore, after switching on the device, it will take approximately 2-3 minutes until the first status message can be transmitted. Independent of this procedure, GPS positions and status information will be generated and stored in the internal memory for later transmission. Here follows the message structure:

Event Message Structure

The first identified and valid GPS position will be taken as the reference position for the distance interval calculations. The next distance interval event will be generated if the configured distance has been reached. If another event (e.g. time interval event) has been generated before, the distance interval measurement starts again at the position of this new event. That means that any position message with an actual GPS position sets a new reference for the distance interval calculations. This reduces the number of messages sent while still keeping the desired resolution of the tracking application.

A position message will also be generated in the case of a direction change being greater than the configured angle while travelling at the configured minimum speed.

Switching on and off the external Power supply (e.g. ignition on/off) also leads to an event message. The last valid position will be transmitted when no new valid GPS position is available.

Content	Description
Event/Log –Code	Reason for the status message
Event/Log Timestamp	Time at which the event has happened
GPS Timestamp	GPS timestamp at the moment of fetching longitude and latitude
Longitude	Degree of longitude in 100µ degrees
Latitude	Degree of latitude in 100µ degrees
Fix Type	1,2 or 3, depending on the availability of satellites in view having a sufficient signal strength: 1D Fix (no valid data) 2D Fix (no height indication) 3D Fix (position message with height indication)
Speed over ground	Speed in km/h
Satellites for calculation	Actual number of satellites which are used for calculation
Height	Height above sea level (in m)
Mileage	Mileage in km
DigIns	4 digits e.g. 0010, if charger is connected
Analog Input 1	Value of the analogue input 1, i.e. Battery voltage with a precision of 1/10 volts
MotSens	Status of the motion sensor

Table 9: Content Description

Power modes

The Pickotrack can work with several power modes based upon the customer's needs.
This allows to save the power consumption as much as possible and to extend the battery runtime.
The available power modes are listed below.

Full power mode
Microcontroller, mobile service and GNSS modules are always on.
Timer Sleep Mode
The device enters the sleep mode between the timer events (events generated every x minutes, being x configurable). During sleep mode mobile and GNSS are turned off and microcontroller is in low power mode. An input can be configured to wake up and stay awake until the input goes to low again.
Motion Sleep Mode
If the motion sensor detects stationary, the device will switch off GNSS and mobile service modules, and the micro controller is switched to low power mode. Changes from "stationary" to "moving" will always wakeup
the system. Then it will stay awake as long as the sensor detects movement. GNSS and mobile modules are turned on. If the device detects "stationary" for the stationary detection time period, the device goes into the sleep mode after 60 seconds.
An input can be configured to wake up and stay awake until the input goes to low again.
Endurance Mode
Basically the Endurance Mode is similar to the Timer Sleep mode, combined with the Motion Sleep Mode. As long as the device is moving, it behaves like in Timer Sleep mode. As soon as it falls to stationary it wakes up, sends the stationary event (if configured) and falls back to sleep until the next movement without generating cyclic messages. This sleep in stationary state can be interrupted by routine or fixed reporting time events.

Basic configuration

The device can be configured via either serial interface or SMS.
In the first case you will need the Cable for Config-Tool Picotrack (Order code 16207) and a serial terminal program (e.g. Realterm).
In the second case, you will need in the device a SIM supporting SMS (M2M SIMs typically don't support them).
Before you insert the SIM card and activate the device, make sure the PIN is disabled or set to 0000. Otherwise it can happen that the PIN is entered incorrectly three times, and the SIM falls into the PUK lock.
This would be deactivated again by a mobile phone.
When sending SMS to a device through a mobile phone, the phone number of the latter must be visible (not hidden), otherwise the device won't send its reply to the sender.

Afterwards, you can check the flashing behaviour, Mobile LED should flash once, when the device is logged into the mobile network, and twice when an IP connection to the server is established.
More detailed information can be found in the „Status Indicators" chapter of this manual.
A lot of parameters can be configured in order to implement the proper use case.
Besides, the unit has to be configured in order to forward messages (events) to the proper server; in the following paragraphs some scenarios will be illustrated as examples (all the details can be found in the Software Protocol Specification, basic and expert type).

Tracking – typical configuration profiles

- **Pedestrian & Vehicle Live (1min interval)**

Position messages are generated every 60 seconds when in motion, regardless of speed or changes of driving direction.
This means that a position message is generated and transmitted every 2 km on a freeway or highway (driving with about 120km/h).
As soon as motion is ended (detected by built-in sensor), the device will go to sleep mode. When going back to motion (detected by the sensor), the device will automatically resume tracking.
A routine event ("I am alive") will be sent once a day.
Then the power mode will be motion-sleep mode (5), and time interval 60 sec.
The following extra messages are generated and sent to the server (value=2 in the 32 bytes sequence detailed below):

- Power Supply connected / disconnected
- Ignition signal on / off
- Digital Input 2 signal on / off
- Digital Input 4 signal on / off
- Device stopped moving (30 seconds without any sensor motion detection)
- Device started moving (according motion sensitivity level 3)
- Periodic Wakeup / Routine message (every 24 hours)

Configuration SMS :
0011{6digitsIMEI},,,,60,0,200000700000,50000009,00000000222222200000000220000000,,,,,0,0,0,0,24,,,,3,30,,,,30,6
Configuration command through serial line:
CONFIG=,,,,60,0,200000700000,50000009,00000000222222200000000220000000,,,,,0,0,0,0,24,,,,3,30,,,,30,6
Remark: the "0011{6digitsIMEI}" of the SMS becomes "CONFIG=" in the serial command; the rest remains unchanged.

- **Vehicle - Medium Resolution - Off by Motion**

Position messages are generated either after 5 km distance or as soon as the driving direction has been changed more than 45 degrees provided that the vehicle is exceeding 20Km/h.
Driving long distances will be covered by one position message every 5 km, driving short distances is managed by generating position messages whenever the driving direction is significantly changed.
As soon as the vehicle has stopped (detected by sensor) the device will go to sleep mode. When vehicle goes back to move, the device will automatically resume tracking.
Power mode: motion-sleep mode (5)
Distance interval: 5,000 m
Course change: 45 degrees
Minimum Speed: 20 Km/h
In addition the following extra messages are generated and sent to the server:

- Power On
- Ignition signal on / off
- Digital Input 2 signal on / off
- Device stopped moving (1 minute without any sensor motion detection)
- Device started moving (according motion sensitivity level 3)

Configuration SMS:
0011{6digitsIMEI},,,,0,5000,020000700000,50000009,2000020000222200000000002200000,,,,,,0,0,0,0,24,,,,3,60,,,,45,20

- **Vehicle - Low Resolution Track (10min interval)**

Position messages are generated in 10 minutes time intervals regardless of motion, speed or changes of driving direction.
This profile should be used for long distance tracking applications.
Power mode: timer-sleep mode (4)
Time interval: 600 sec
Configuration SMS:
0011{6digitsIMEI},,,,600,0,200000700000,40000009,00000000000000000000000000000000,,,,,,0,0,0,0,24,,,,3,60,

- **Vehicle - High Resolution Track - Off by Ignition**

When the ignition is on, position messages are generated and sent either after an 1 km distance has been travelled or as soon as the driving direction has been changed more than 30 degrees; additionally a position message is sent every 5 minutes.
Driving long distances will be covered by one position message every km, driving short distances is managed by generating position messages as soon as the driving direction is changed more than 30 deg.
As soon as the Ignition signal is detected as off, the Picotrack will enter the sleep mode.
This profile should be used for all kind of tracking applications where a high accurate position track is needed.

Power mode: input sleep mode (1)
Time interval: 300 sec
Distance interval: 1,000 m
Course change: 30 degrees
In addition, the following extra messages are generated and sent to the server:

- Power Supply connected / disconnected
- Ignition signal on / off
- Digital Input 2 signal on / off
- Device stopped moving (1 minute without any sensor motion detection)
- Device started moving (according motion sensitivity level 3)
- at 9:00am and 08:00pm (UTC) an inventory message is sent regardless the ignition state

Configuration SMS:
0011{6digitsIMEI},,,,300,1000,220000700000,10000009,00000200022222220000000022000000,,,,,,
0,540,1200,0,24,,,,3,60,,,,30,6

Connection to the server – configuration

In case you use your own server, the SW integration of Telic's proprietary protocol is mandatory (otherwise received data will be meaningless).
The following configuration command sets some IP parameters in the device, allowing the same to connect the proper server.

00b1{6 digits-IMEI}IP Address,IP Port,APN,USERNAME,PASSWORD,
(SMS command)
Or:
IPCONFIG=IP Address,IP Port,APN,USERNAME,PASSWORD,
(serial command)
APN, USERNAME and PASSWORD must be adapted according to the SIM card (Provider).
In case there is no Username (or Password), you have to digit: "".

When you send an SMS, you must wait for an SMS reply by the device (Ack) confirming IP address, port, and APN credentials (*you can disregard the other parameters*).

Example:
IP Address: 78.137.103.86 (this is in particular the IP address of telic.kentaur.cc)
IP Port: 1561
APN: internet.m2m.de Username: m2m Password: sim
{IMEI} = last 6 or 15 digits of IMEI – 353322088958773

Final SMS:
00b195877378.137.103.86,1561,internet.m2m.de,m2m,sim,
Reply by the device:

00b49587737878.137.103.86,1561,internet.m2m.de,m2m,sim,1,80,60,,,,,0

Advanced Features

This section describes some advanced features supported by the device, which might be required for different use cases.

Geofencing

Geofencing (an electronic safety fence) provides the opportunity to set a geographic square around a defined location. Here you can configure different events like “leaving the area” or “entering the area” to be transmitted to the control centre. Up to 50 geofence areas can be monitored, which can also be combined to create larger areas and build up complex protection zones. Every geofence area is given an Area ID, a centre (defined by its longitude and latitude) and a height and width (from the centre not completely across) in meters.

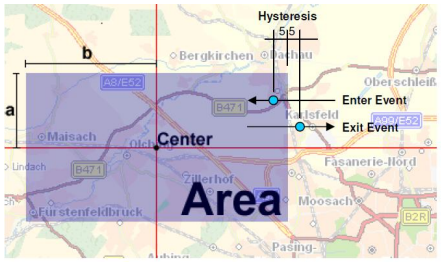


Figure 4: Geofencing

Roaming alternative configuration

The device is able to detect a GSM roaming status and swap automatically to an alternative setup for roaming (this alternative setup has to be previously configured). This allows optimizing the data traffic and reducing the communication costs.

Device Watchdogs

The Picotrack has different integrated watchdogs. They automatically check the functions of the device and generate resets as soon as they recognise any malfunction. Malfunction could occur due to internal problems of the device, problems related to the GSM connection, problems with the GPS reception and many more.

This watchdog concept ensures that the Picotrack can automatically return to stable operation if necessary. Control of the watchdogs by the user is not necessary.

If the watchdog has to restart the device, it may happen that some of the position messages and respectively events are not logged and as a result they are not transmitted to the tracking server.

Device-based wireless positioning

The device can be configured in order to get a localization obtained by the GSM module, in case that the GPS has some difficulties providing a valid fix. Of course this position will be less accurate and take a bit longer than the standard way by GPS module, therefore this functionality has to be considered as a fallback for the GPS.

Device Installation on Board

In order to protect your goods from theft and vandalism the device should be installed in a location where it is well-hidden. Please install the device in a suitable, dry location, not in contact to radio and audio frequency interference or hot parts of the good. Be aware to observe ESD (Electro Static Discharge) protection measures. When installing the device consider that antennas are integrated, this means it must be installed in a place with a minimum distance of 7 cm to any metallic components of the good in each direction. In order to optimize the quality of the signal received, the surface of the internal GPS internal antenna must be installed while looking at the sky.

Safety

The following guidelines must be followed in order to ensure the safety of users. If these rules are ignored Telic will not assume responsibility for any damages that are incurred.

General Battery handling

The Picotrack main power source is a battery with high energy capacity. These rechargeable batteries are designed to provide the highest possible degree of safety. They may, however, present a potential hazard if they are abused electrically or mechanically. This is in most circumstances associated with the generation of excessive heat. In this case the internal pressure may cause the cell case to rupture.

Consequently, the following general guidelines should be followed when handling the Picotrack Battery:

Do not short-circuit
Do not over discharge
Do not incinerate
Do not expose to temperatures beyond the specified temperature range
Do not crush or puncture
Do not open cells, do not disassemble battery packs
Do not expose contents to water
Do not connect with false polarity
Do not weld or solder to the battery's body

It is very important that only authorized official Telic replacement batteries be used in the Picotrack. Also, the batteries included with the devices are only tested or authorized for use in the Picotrack. The batteries should never be used in any other devices unless specifically authorized by Telic, including but not limited to other Telic products or devices.

Battery storage

Batteries should be stored in rooms with generally low temperature and low humidity levels. While it is not essential that these storage areas be temperature and humidity controlled, temperatures should generally be kept below 35 °C and storage areas should be well ventilated. Storage temperatures above 75 °C should be avoided.

Your Picotrack batteries should be stored in their original packaging materials or in the Picotrack itself. This will eliminate unintentional short-circuiting. Do not store batteries in conductive anti-static bags or foam unless the resistivity of the material exceeds 1 MΩ. Batteries should not be placed on or covered with metallic or otherwise conductive material.

Batteries should be stored away from any flammable material in the storage area. Fire extinguishers for metal fire (class D) are preferred. Do not attempt to extinguish fires with small amounts of water, sand, or with carbon dioxide extinguishers.

Battery Disposal

The disposal or recycling of batteries is regulated by each European country. In each country, the manufacturers, importers and users are responsible for proper disposal. The European Community (EC) has issued two directives, 91/157/EEC and 93/86/EEC. These directives are implemented by each member country of the EC independently and in a different way. In accordance with these directives, the Picotrack batteries do not contain dangerous substances. The reaction products are inorganic and do not represent environmental risks once the decomposition process has terminated.

General Terms and Conditions

All information in this documentation has been carefully assembled and checked but should not be considered as a guaranteed feature set. The copyright of the related documentation is with Telic AG Telematik Produkte und Lösungen.

The Telic Logo and the terms Telic, and Telic Picotrack are brands of Telic AG Telematik Produkte und Lösungen.

All further names and terms used can be brands or registered brands of their respective owners.

Telic reserves the right to change the included information without notice and doesn't take responsibility for errors in the document and/or missing information.

Document History

Revision	Date	Changes
Rev. 1.0	09/09/2020	First draft on new layout
Rev. 1.1	09/10/2020	Inserted new pictures
Rev. 1.2	26/10/2020	Added "Configuring a device" chapter (m.essert)

Table 10: Document History