Introduction

For many years PKI is successful in the development of GPS trackers. The Global Positioning System covers the earth with its satellites and thus offers an exact position determination at any place of the earth. Its 24 satellites orbit the earth at an altitude of approx. 20,000 km. The analysis of the satellite's signal propagation delay to the GPS receiver allows the exact determination of the position, subject to capturing at least 3 satellites simultaneously.

In combination with a GSM mobile phone network it is easily possible to survey valuable items, vehicles and persons. With our experience we developed optimized devices for any purpose and use, and thus we can offer a huge product range of high quality products to our customers. As the reception of GPS satellites is indispensable for the functioning of GPS trackers, it is not possible to use them inside of buildings or tunnels. In this case it is possible to effect the position determination via radio cell using a tracker with mobile phone connection. This method is not as exact as the GPS position determination, but offers the advantage to be available anywhere, where mobile phone signals are received. In combination with data links via GSM network an accelerated first determination of the position is possible, by loading the data of the GPS satellites into the receiver. This method is called AGPS and allows a quicker position determination, e.g. after an interruption of the connection.

The operating time of the GPS trackers depends on the batteries used, as well as on the rate of the frequency of the position data transmission. Due to the intelligent energy management of the PKI trackers as well as their newest battery technology, stand-by periods have been optimized. The use of additional sensors such as motion sensors and temperature sensors substantially enlarge the activity range. It is also possible to use the devices with the power supply of a car which has the advantage of unlimited operating time. The connection with mobile phone networks allows a permanent surveillance of the devices and even the use of an integrated microphone. We would be pleased to assist our customers in the choice of the adequate SIM card. Especially the use across borders requires the consideration of some important details. All stored position data can be processed further for use at a later time or used in real-time.

The display of the position on maps is part of the standard. Additionally it is possible to include distance and speed into the data evaluation. Don’t hesitate to contact us with your specific requirements, and we will develop a tailor made concept for you.
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GPS / GSM Technology

PKI 1900 GPS Bug

The PKI 1900 GPS bug is an extremely small GPS logger. It is perfect for the control of covered distances, e.g. in the case of invoicing based on covered distances. By means of a GPS receiver it continuously records the current position and stores the data in the built-in memory. Afterwards it can directly be connected to a computer via USB interface, in order to read the stored data. An extensive analysis of the data is possible and can be displayed on maps. The number of waypoints to be stored in the PKI 1900 can be configured according to your requirements. As the PKI 1900 only receives and stores the data, it cannot be located by HF detectors nor jammed by GSM jammers. It is equipped with a built-in battery which allows a 14-hours operating time. Optionally it is possible to use other power supplies with extended capacity. The memory’s configuration assures that the stored data won’t be lost when the battery is empty. The PKI 1900 can optionally be supplied with waterproof housing.

Specifications:
• Frequency: 1575.42 MHz (L1-band)
• Reception methods: up to 51 independent tracking channels
• Sensibility: -158dBm
• Cold start: 36 sec. (minimum)
• Warm start: 1 sec. (minimum)
• Accuracy of position determination: approx. 2m
• Operating time: up to 60 hours with rechargeable batteries, batteries with extended capacity are optionally available
• log interval: approx. 15 sec.
• Storage capacity: approx. 16 MB
• Dimensions (approx.): W 48 x H 20 x D 15 mm
• Operating Temperature: 0 - 40°C
• Weight: approx. 15 g
• USB charging device included

PKI 1905 GSM Bug

The PKI 1905 GSM bug is a small GSM module that can easily be handled due to its compact design. The PKI 1905 is a GSM transmitter which allows monitoring of the direct proximity of the PKI1905. Additionally, the PKI 1905 is able to send an alert signal via SMS in the case of loud noises or shocks. In spite of the fact that it does not contain a GPS module for position determination, it can of course be located by an external GSM locating service. As these locating methods base on the emission of the surrounding radio cells, the locating is also possible where GPS signals are not available. Therefore this device is perfect for use in areas where a GPS reception is not assured. Similar to a mobile phone the PKI 1905 can always be reached. Therefore its battery capacity depends on the type of operation and network conditions. The GSM bug can of course be connected to an external power supply that is available on-site, which allows its use without time restriction.

Specifications:
• Network: GSM 900 / 1800 / 1900
• Power consumption: 20 mA standby mode / 200 mA monitoring mode
• Audio surveillance: -75dB
• Voice control: environment voice filtering or direct human voice sensor
• Device configuration method: password protected SMS text message
• Li-battery: 3.7 V DC at 900 mA
• Charging voltage: 5V – 6V DC 500 mA
• Charging input volt: 100-240 V AC
• Dimensions: 53 x 36 x 13 mm incl. battery
• Weight: 40 g
PKI 1910
GSM GPS Bug

The PKI 1910 GSM GPS bug is a GSM module with built-in GPS receiver. The module can be used with the built-in battery or alternatively with the power supply of a car. Its compact design makes it perfect for covert installation in a vehicle. The PKI 1910 is activated by a specific SMS and immediately it sends an SMS with the current position. With this data the position can be displayed on digital maps, on the PC as well as on a smartphone. The PKI 1910 GSM GPS bug only requires a valid GSM SIM card for the transmission of SMS and to be reachable. As this device uses the SMS service for the transmission of the position data, it also works within GSM networks that don't offer data services. This makes the PKI 1910 a perfect tool in order to track the delivery of goods or packages. In addition to locating based on GPS positioning, it can also be used with the GSM radio cell locating method, which allows continuing a locating operation even if the GPS connection is interrupted.

Specifications:
- Frequency range: GSM 900/1800/1900 MHz
- Internal high-sensitive ceramic patch antenna
- Chip set: SiRFstar III
- Integrated GSM antenna
- Operating time with built-in battery: up to 50 hours or without time limit with external power supply
- Protocols: NMEA 0183/ GGA, GSA, GSV, RMC, VTG, GLL
- Frequency: L1, 1,575.42 Mhz
- Tracking sensitivity: - 159dBm
- Position accuracy: 10 meters 90% 2D RMS
- Frequency: 1-5 meters
- Cold/warm/hot start: 42/35/1 sec.
- Power supply: rechargeable 450mAh Lithium Polymer battery
- Operating temperature: -20°C + 60°C
- Relative humidity: 5 - 90%

PKI 1915
GPS GPRS Bug

The PKI 1915 GPS GPRS bug is a GPS receiver that continuously transmits its position data to a server via internet connection. The data is stored on the server and can be processed for display on digital maps. The advantage of the continuous data transmission is that the data on the server is always up-to-date and in the case of an interruption of the connection with the PKI 1915 its last position can be seen. This for example can be helpful in the case of detection or interruption of the power supply. The positioning intervals can be configured individually in order to display a route tracking that is as complete as possible. The data transmission via internet protocol can be substantially cheaper than the use of SMS messages. This allows continuous surveillance of vehicles and items. Unlike the locating method on request, this feature allows tracking of the route even afterwards. If the PKI 1915 remains a certain time at one place without being moved, it automatically switches into standby mode, which substantially extends its battery life. The route tracking requires a tracking server. PKI can assist in the choice of a suitable service provider or submit a tailor-made solution to you. Please bear in mind, that it is indispensable that the network operator provides GSM GPRS data transmission.

Specifications:
- Frequency range: GSM 900/1800/1900 MHz
- with GPRS data transmission
- Internal high sensitive ceramic patch antenna
- Chip set: SiRFstar III
- Integrated GSM antenna
- Operating time with built-in rechargeable battery: up to 40 h or unlimited with external power supply
- Frequency: L1, 1,575.42 Mhz
- Tracking sensitivity: - 159dBm
- Position accuracy: 10 meters 90% 2D RMS
- Frequency: 1-5 meters
- Cold/warm/hot start: 42/35/1 sec.
- Power supply: rechargeable 600mAh Lithium Polymer battery
- Operating temperature: -20°C + 60°C
- Relative humidity: 5 - 90%
GPS / GSM Technology

**PKI 1920**

GSM Audio Monitoring with GPS

The **PKI 1920** is a GSM module with built-in GPS receiver that in addition to its locating capacities also features audio surveillance. It can be operated with the built-in rechargeable battery, or alternatively with the power supply of a car. A specific SMS activates the **PKI 1920** and immediately sends an SMS with the current position. With this data the position can be displayed on digital maps, on the PC, or on a smartphone. The **PKI 1910** GSM GPS bug only requires a valid GSM SIM card for the transmission of SMS and in order to be reachable. As this device uses the SMS service for the transmission of the position data, it also works within GSM networks that don’t offer data services. In addition to this, the **PKI 1920** can also be used for monitoring of noises or conversations in its environment. The built-in microphone works as noise sensor and once it captures noises of a certain loudness, which can be adjusted according to the environmental conditions, the **PKI 1920** informs the user via SMS or phone call. Now the microphone can be activated by means of a telephone call. The signal threshold and further parameters can be adjusted via SMS “over the air”. Especially during operation with external power supply the **PKI 1920** can be configured remotely, without need of direct action. In the case of covert installation the operation with an external microphone is possible.

**Specifications:**
- GSM: 850/900/1800/1900 MHz Quadband
- Antenna: external GSM and active GPS patch antenna
- External power supply: 6V - 30 V DC

**PKI 1925**

GPS GPRS Tracker with Motion Sensor

The **PKI 1925** GPS GPRS bug is the most sophisticated GPS tracker in the market. It continuously transmits the position data to a server or submits them for download via data connection. The **PKI 1925** is equipped with a highly sensitive ceramic GPS patch antenna, which even allows locating in buildings nearby the window. The extensive range of configuration parameters allows an optimized power saving management which is best adapted to any application requirement. The integrated motion sensor in combination with the sleep mode allows optimized stand-by periods. The status messages emitted by the **PKI 1925** contain an extensive range of information, such as time, covered distance, change of direction, speed and battery charge. The **PKI 1925** features the creation of Geofences and automatically emits an alert signal when leaving the Geofence perimeters. It is equipped with an emergency button for manual emission of an alert message. For cross-border operations it is possible to create lists of allowed network operators, in order to optimize the costs of roaming fees. The software can be updated at any time, if necessary even via over-the-air data connection. The **PKI 1925** features a watchdog function for the detection of failures due to interferences and which, if necessary, automatically launches a restart of the system. This guarantees an autonomic operation at any time. The built-in microphone can be activated via GSM telephone connection, in order to listen into the area around the **PKI 1925**. This tracker offers a huge range of applications, such as fleet management, personal security, surveillance of rental cars, locating of goods or containers, and much more. It can be operated with an external power supply or with different types of batteries. Waterproof housings are available for outdoor use or covert installation outside.

**Specifications:**
- Weight: 40 grams
- Power supply: 5V Lithium Polymer rechargeable battery
- Dimensions: 54x37x20 mm
- Operating temperature: -20°C to +60°C
- Charging temperature: 0°C to +45°C
- Intelligent quick charger control with USB interface
- Operating time: according to configuration and transmission intervals up to several weeks
- Ceramic GPS patch antenna and integrated GSM antenna
- Supports AGPS for quicker initial determination of the position
**PKI 1930**

**EDGE/GPS Audio Bug With Recording Feature**

The **PKI 1930** is the perfect solution for long-term audio surveillance where a continuous surveillance of the connections is not possible. The **PKI 1930** is equipped with a highly sensitive microphone for digital high-quality recording into the integrated memory. The recorded data is compressed in order to save memory space, which allows continuous surveillance even over longer time periods. The data in the memory can quickly be downloaded via EDGE or GPRS connection as an audio file, in order to release space on the memory card for further recordings. As this high-speed connection only requires an extremely short connection, a very long operating time is possible, if the **PKI 1930** works with the integrated rechargeable battery. The use of an external power supply of course offers unlimited operating time. The **PKI 1930** requests a GSM SIM card which allows data transmission and preferable should be used via EDGE connection. It supports GSM EDGE and thus can work with the maximal upload speed in EDGE networks.

**Specifications:**
- **Weight:** approx. 95 grams depending on the used power supply
- **Power supply:** Lithium Ion rechargeable battery or external power supply
- **Dimensions:** 60 x 2 x 5 cm
- **Data connection:** EDGE Quadband GSM module
- **Data storage:** Micro SD card
- **Data connection:** mini USB
- **Recording:** voice controlled
- **GPS:** SiRF Star III
- **Sleep mode with VOX:** 1mA
- **Idle mode with GPS:** 45 mA
- **Connectors:** 2 x antenna GPS/GSM

For areas with 3G coverage a special 3G version is available.

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**PKI 1935**

**GPS Tracker with Satellite Connection**

The **PKI 1935** GPS tracker continuously transmits its position data to a server using a satellite connection, instead of GSM networks. This allows tracking operations at places without any GSM reception. This is the only way to realize a continuous survey of vessels or containers. Even in remote areas a continuous reception of GSM signals is not always secured. In the area of GSM networks the **PKI 1935** uses the terrestrial connection. This makes sure that its connection is not interrupted, for example in buildings or garages. Depending on the tracking service used, the waypoints can easily be entered into the maps.

**Specifications:**
- **Weight:** approx. 220 grams
- **Power supply:** Lithium rechargeable battery
- **Dimensions:** 112 x 70 x 45 mm
- **Operating temperature:** -40°C - 80°C
- **Antenna:** Navman SiRF III
- **Standby time:** up to 20 days
PKI 1940

GPS Tracker for Camouflaged Installation

PKI 1940 is a GPS tracker which is suitable for camouflaged installation in objects of daily use, i.e. bags, suitcases, soft toys or even in heels. By use of powerful batteries maximal operation time can be achieved depending on size of available hiding place. PKI Electronic will be pleased to provide assistance for professional installation of PKI 1940 if required.

Specifications:
• Weight: 55 g
• Power supply: Lithium Ionen battery or others
• Dimension: 30 x 40 x 23 mm
• GSM: Quadband module
• Remote programming via SMS
• GPS antenna: SiRF star III
• Connector: GSM/GPS

PKI 1945

GSM Tracking Tag

The PKI 1945 tracking tag is a mini GSM tracking transmitter for the detection of lost or stolen items. The PKI 1945 GSM module is combined with a remote controlled tracking transmitter and a loud audio signal generator. Its standard mode is the sleep mode, which is interrupted within adjustable intervals for the receipt of instructions via SMS. If it is activated by a specific SMS, it captures all information data from GPS and the surrounding GSM radio cells and transmits them to a server. This captured data allow the exact determination of its position depending on topographic conditions, with an accuracy of up to two meters. Once at the determined place, a control command can activate the integrated tracking transmitter. The transmitter emits a range of sounds in three graduated transmission powers. This allows further exact determination of its position. If the transmission signal is received without interruption, a directional antenna must be used. The exact frequency can be adjusted via SMS in order to avoid problems with busy frequencies. If the PKI 1945 is untraceable, it is possible to activate the signal transmitter with a further control command, in order to obtain an acoustic signal, which allows locating of persons within crowds, for example.

The sleep mode in combination with Lithium batteries provide an extremely long operating time. The module emits a message informing the user of low battery charge. As its tracking function is not only based on GPS it is possible to locate the PKI 1945 even under difficult conditions. The device uses the information of all GSM signals available on-site and thus is not affected by dead spots of single networks. Consequently it obtains a more accurate result than devices working with conventional GSM locating based on only one single network.

Specifications:
• Dimensions: 40x40x20 mm waterproof housing. On request also available in camouflage design.
• Power supply: 3V Lithium rechargeable battery
• Standby time in sleep mode at two time frames: 200 days per day for SMS reception
• Volume signal transmitter: 110dB
• Tracking transmitter: 433MHz
• Signal transmission range: up to 1000 meters depending on topographic conditions
• Over the air configuration: via SMS/FTP/GPRS
• GPS: SiRFstar III
• Data connector: mini USB
• Low battery alarm: via SMS/GPRS
• Built-in motion sensor
• Accessories: Reception unit 433MHz with handheld tracking transmitter and car antenna with magnetic base
GPS Jammer

The **PKI 1950** is a jamming transmitter, which interrupts all GPS reception in the area nearby. This might be necessary, if for example you suspect your car being monitored by means of a GPS tracker. Also in the case of an official security examination of vehicles or containers that have to be moved for this purpose, the **PKI 1950** can avoid that a potentially installed GPS surveillance system might detect the operation and informs the owner. The combination with one of our GSM / UMTS jammers allows interfering with GSM/UMTS based trackers as well.

**Specifications:**
- Weight: 2.5 kg
- Power supply: external power supply
- Dimensions: 250 x 180 x 50 mm
- Transmission power: approx. 5 W

GPS Jamming Detector

The **PKI 1955** jamming detector has been developed for selective detection if GPS devices are jammed by someone. If your vehicles are equipped with GPS devices, the **PKI 1955** finds out if the determination of their position is disturbed by any jamming device. This for example might be possible in the case of a deviation from the scheduled itinerary. The **PKI 1955** jamming detector is not affected by interferences from mobile phones or radio devices, but reliably indicates interferences produced by jamming devices. Its electronic system contains a specific filter mechanism that selectively indicates jamming signals only. Interferences of other frequency ranges (GSM, UMTS) can be detected as well. Inversely it suppresses the normal background noise.

**Specifications:**
- Frequency range: 500MHz - 6 GHz
- Power supply: 9V - 24V DC
- Alarm output: 1A relay
- Sensitivity: adjustable
- Dimensions: 130 x 68 x 26 mm
PKI 1970

Tracking Software

The PKI 1700 tracking software has been developed for real-time display of position and route of tracked devices. It is intended for use in combination with our PKI GPS tracking devices which supply a continuous data transmission via GPRS. It is also possible to display several destinations simultaneously and thus allow real-time fleet management. The recorded information can be traced back until a desired point of time or can even be filtered according to regions. During on-line use it is possible to work with services of various internet providers of maps, in order to display the positions on the maps. The maps can be stored in the local memory for off-line use of the software. Via on-line connection the recorded positions can be downloaded from the GPS tracker. Depending on the data provided by the tracker, the following parameters can be shown:

Specifications:
- Identification of the device
- Current position
- Date and time
- GPS signal quality
- Status of the motion sensor
- Battery charge
- Direction
- Current height of the tracker
- Speed
- Operating system: Microsoft Windows XP and higher

PKI 1960

GPS Microphone

The PKI 1960 is a supplementary device for microphones, which allows the user to obtain an overview about the place of action of the team. After connection of the PKI 1960 to the microphone jack of a radio device or walkie-talkie it automatically transmits its position data and messages to the conversation partners. The large display shows the position of the team members in relation to your own position. All devices work together on a peer-to-peer basis, without using a server. This allows the use of GPS microphones even in remote areas or at disaster operations. It is of course possible to additionally include a control center, in order to show the positions of the team members on a digital map. This gives the operation controller an up-to-date overview about the entire course of action. It is possible as well to send short text messages to the team members. The PKI 1960 GPS microphone is powered by its own rechargeable Lithium battery, so it does not affect the standby time of the radio device.

Specifications:
- Up to 20 hours operating time with only one battery charge.
- Display with a resolution of 120 x 160 and background lighting.
- Indication of position, height, speed, direction and temperature.
- Stores and transmits waypoints to single users or groups.
- Stores up to 50000 positions.
- Shows the own position in relation to other users.
- Calculates the arrival time based on distance and speed.

The PKI 1960 GPS microphone can be used with nearly every radio infrastructure without any problem and can be connected with adapter to any radio device.
PKI Product Range

Professional Equipment for Emergency Aid

Intelligent Jamming Systems

Systems for Interception and Monitoring of IT and Radio Transmissions

Video and Night Vision Systems using Image Intensifying and IR Cameras

Mechanical and Electronic Devices for Police, Customs and Military Departments

Custom-made and Portable Devices for Digital Audio/Video Transmission, Receivers and Recorders

GPS, GSM Navigation and Tracing Systems

Protective Clothing

Systems for Optical and Wireless Detection, Inspection and Analysis

All Types of Devices for Counter Surveillance

X-ray Inspection Systems

Electronic Devices for Prisons

Professional Maintenance and Training Program