

Plates with intelligent RFID technology

The increasing danger of terror worldwide and the desire for more safety, vehicle oversight, and better vehicle recognition were the triggers for the development of a new and particularly easily identifiable, tamper-proof license plate with the acquisition and reporting components necessary for this.

The basic requirements for the operation of a perfect vehicle identification system are, in addition to a central register such as the KBA in Flensburg in Germany, an optical and functional system that automatically collects and compares the data read within seconds. Only one such component system is in a position to identify a large number of vehicles quickly and across several lanes.



The use of RFID chips in license plates is, of course, no new invention, but the approach taken by A. Sievers GmbH and its partner companies for the development of an intelligent RFID plate is substantially more complex and more sophisticated than previous RFID systems.

The approach for the intelligent Sievers license plates was, in addition to recording, an RFID chip at a distance, which, with the official license plate seal, is invisible and is protected against tampering.

■ Area of use

The data stored on the RFID chip can be read by individual antenna systems as well as on mobile handheld readers. The data is also coded and password-protected. Among other things, this supports secure traffic monitoring and makes possible the use of automatic barrier systems.

In addition, various tests have shown that a secure identification of vehicles using the RFID chip is guaranteed, even in unfavorable weather conditions such as rain, snow, or fog as well as with dirty license plates.



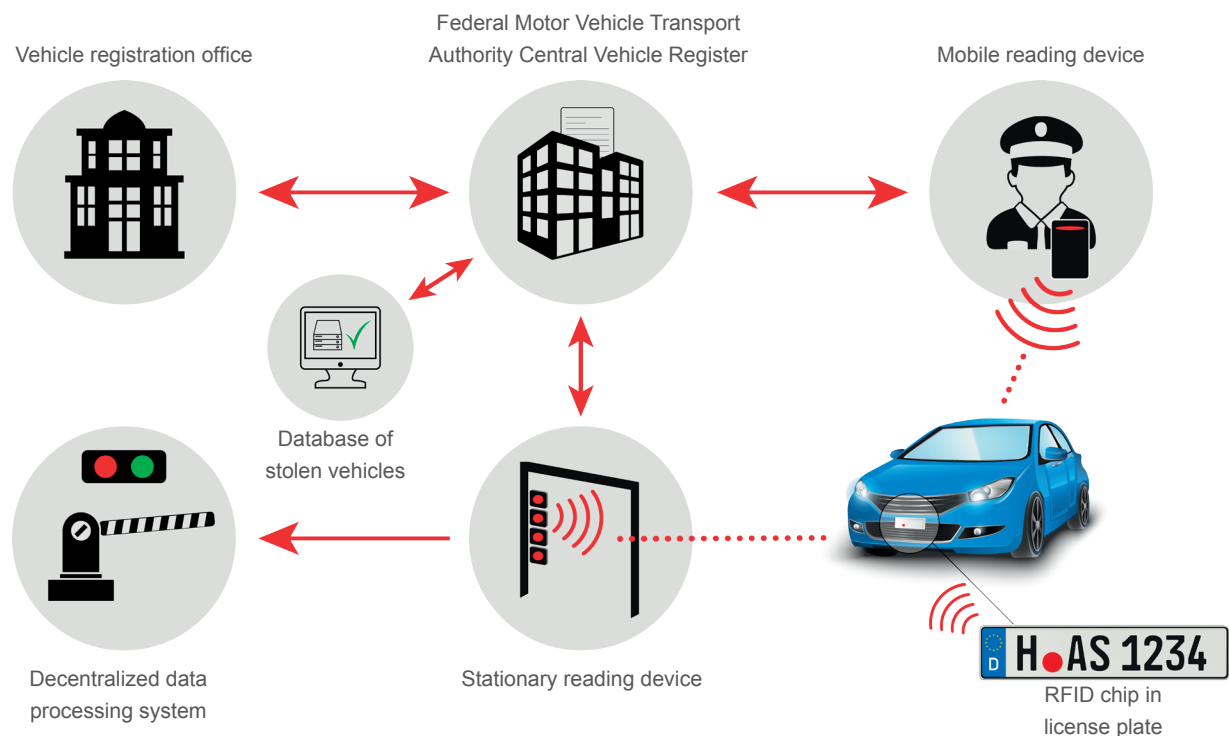
■ Data security

The protection of data and the assurance of the right of personal freedom is not affected by the Sievers system, because only a multi-digit sequence of numbers, the tamper-proof RFID identification number, is transmitted to the computer via the installed RFID chip, and no personal data is stored or transmitted. Only the central computer is in a position to evaluate and correspondingly forward the data sent in this case.

From a technical standpoint it is, of course, also possible to store further data from the RFID chip up to a size of 1 GB if desired, for example, for access controls, vehicle hirers, or forwarding agencies.

■ Operating principles

The Sievers vehicle identification system consists of two necessary components: the optical and the radio systems. For example, if several vehicles are moving across a supporting bridge equipped with this technology, first the license plate is optically scanned, while, at the same time, the information from the RFID chip is collected and immediately transmitted to the central computer, which then compares the data collected with the stored database within seconds and immediately transmits the information to the appropriate authority in case of uncertainties



■ Advantages

The greatest disadvantages of all previously-known RFID license plates are, among other things, their visual appearance, their dampening effect, and their short detection distance (max. 6 to 8 meters, but primarily 1 to 2 meters) as well as the easily manipulated shield of the RFID chip in the license plate itself. For example, if you shield a passive RFID chip with lead or aluminium foil, such as with textile safety labels, the antenna signal sent will no longer correspond with the RFID chip. Identification under these circumstances is nearly impossible.

The following advantages distinguish the RFID system developed by A. Sievers GmbH:

- A tiny, active RFID chip with a nearly invisible container that allows for a practically tamper-proof connection with the license plate
- A service life of more than 3 years. The high-performance battery can, for example, be checked during an inspection, if necessary, can be exchanged with a new one, as this is available separately
- An RFID chip that allows for precise data reading at distances of up to 120 meters and for vehicle speeds of over 240 km/h, depending on proximity
- A very high transmission power of the RFID chip, which makes shielding nearly impossible and itself allows for exact vehicle identification, even with high vehicle density.