nedap®

TRANSIT

Automatic Vehicle Identification
Nedap offers a wide range of Automatic Vehicle Identification systems based on various Radio Frequency Identification (RFID) technologies. The unique capability to integrate these technologies into one dedicated system offers a high level of flexibility, user convenience and makes NEDAP a truly unique solution.

Our Automatic Vehicle Identification (AVI) systems are developed based on our large selection of long-range microwave and short-range identification technology products. The ability to combine both technologies offers the possibility to develop solutions in cases where separate parts of an installation can be merged together and implemented as one system. The open architecture aspects of the NEDAP solution allow for maximum flexibility when incorporating OEM components or integrating the technology with existing systems.
Nedap TRANSIT is a long-range microwave identification system. The system features automatic identification of vehicles from distances up to 10 meters (33 feet). Even when vehicles are travelling at speeds up to 200 km/h (125 miles/hr). In contrast to proximity systems, drivers no longer need to present a badge. Positive identification does not require any action by the driver; the vehicle is automatically identified as it enters the identification lobe of the reader. The system provides the driver the freedom to concentrate on driving, making navigation easier and safer.

The Nedap TRANSIT system is based on proven microwave technology operating in the 2.45 GHz ISM band using modulated backscatter. The AVI tag transmits its identification number to the reader by modulating and reflecting the signal transmitted by the reader itself, thus transmitting encrypted information. The signal is then decoded by the reader according to the systems algorithm to recover the tag's identification number. To reduce the influence of unwanted reflections, Nedap applied circular polarization, which also allows orientation freedom of the tags. Most non-metallic materials are transparent for the microwave energy, and even dirt, rain, snow and ice do not affect the performance. The system efficiently solves for multi-lane and entry and egress reader challenges.

**Safety and security**
Our products comply with CE, EMC and FCC regulations, and several global radio communications agency certifications, guaranteeing the reliability and safety of our products. The system is compliant to the required postal regulations for most countries. No site license is required.

**System components**
The Nedap TRANSIT system consists of the following components;
- Readers
- Interfaces
- Tags

**NEDAP TRANSIT, long-range identification**
Long-range microwave identification is especially well suited for installations where detecting vehicles in motion and a high level of comfort, convenience and security are required.
The Nedap TRANSIT reader consists of a controller and built-in antenna offering easy and time efficient installation. Due to the system’s long reading range the TRANSIT reader can be installed out of the reach of vandals. The identification lobe of the reader is a directed beam offering precise determination of the identification area. The TRANSIT reader operates on a frequency, selected and set at the factory. The frequency offset allows multiple readers to operate in the same range.

The following TRANSIT readers are available:

1. **The TRANSIT Standard reader**
   The TRANSIT Standard reader operates as a stand-alone reader that can be integrated in an existing access, parking, traffic or loading control system. A Nedap proximity (120 kHz) module is integrated as a part of the TRANSIT Standard reader. It allows connection of an additional (proximity) antenna to the reader to facilitate gate master functions.

2. **TRANSIT Extended reader**
   The TRANSIT Extended reader expands on the features of the standard reader by adding functionality that enables the reader to store authorization profiles and data records.

3. **ProXS Blue handheld**
   Proximity handheld device featuring a wireless Bluetooth interface, enabling proximity identification of inductive tags and dual band microwave tags.
Several communication interfaces to the host system are available for a broad range of industrial standards such as RS232, Profibus DP, Interbus S, Multidrop, 20 mA Currentloop and TCP/IP. Optional the Barcode 39, Wiegand and Omron protocols are supported. Specific customer protocols can also be accommodated, if requested.

The Nedap TRANSIT system was designed for seamless and flexible integration with pre-existing management systems in the industry, such as parking management, traffic, loading control, weighing and access control systems.

Network connectivity

TCP/IP networks
The TRANSIT can be equipped with an integrated TCP/IP communication board that enables the reader to communicate directly to the local area network.

Industrial networks
TRANSIT can be connected easily as slave of an industrial Profibus DP or Interbus S network by means of the Profibus DP or Interbus S communication interface.
Integration in third party access control systems

In third party access control systems the TRANSIT reader can be added as an upscale feature facilitating long-range vehicle access. The TRANSIT can be connected to the output of the proximity controller based on non-proprietary standards such as Wiegand and Omron.

Integration in proprietary systems

TRANSIT Standard reader can be connected to the antenna output of an inductive Nedap controller acting as a long-range antenna. The TRANSIT unit is connected to the antenna output of the controller, where normally an inductive antenna would be connected. The access control software will control authorisation and data profiles are stored locally in the controller. Even connection to existing Nedap systems is possible. The TRANSIT Extended can directly be connected in the Multidrop loop of the inductive controllers as a proprietary reader. The TRANSIT Extended can be applied when local authorisation profiles are required and the total number of users does not exceed 1000.

TRANSIT integration in NEDAP AEOS

Nedap TRANSIT can be integrated into the AEOS security management system to provide convenient vehicle access control in addition to the benefits in flexibility and functionality offered by the Nedap AEOS system.

TRANSIT integration in other industry systems

Nedap TRANSIT can be integrated in a wide range of existing industry systems such as parking management, traffic control and weighing systems. As an example we outlined the integration in a parking management system. The TRANSIT communicates with the parking management system. The parking management system controls the barrier and handles authorisation.
Key features

- Long read range
- High speeding passage
- Compact design with built-in antenna
- Flexible integration by proprietary and non-proprietary standards
- Unique compatibility with proximity systems
- Integration of inductive cards
- Dual band feature
- Simultaneous driver & vehicle ID
The Nedap TRANSIT system has a wide range of tags characterized by an excellence in design and suitability for various applications.

**Tags**

**Booster**

The Nedap TRANSIT system is compatible with proximity RFID systems. A proximity credit card sized tag can be placed in the Booster-unit, which amplifies the read range of the card and transmits the card identification to the TRANSIT reader. The Booster unit can easily be installed behind the windshield of a vehicle. The Booster was developed for applications in which drivers already have an ID card for access control to the building, time & attendance and vending machines. The Booster can be used with several types of proximity cards.

**Combi-Booster**

Additionally a separate vehicle ID can be programmed in the Combi-Booster hardware. When configured with a proximity card this solution will allow a driver ID badge and vehicle ID to be read simultaneously. As a result vehicle and driver ID are combined and fleet managers can keep track of who is driving what vehicle. This combined vehicle and driver ID is a unique patented NEDAP feature incorporated in the Combi-Booster.

**Pocket Tag**

The Pocket Tag is a microwave tag, which allows identification of people in long and short-range hands-free applications. The Pocket Tag has a unique dual band feature; it operates based on both microwave and inductive technology. The tag can be used in projects where long and short-range identification needs to be combined and covered with one tag.

**Heavy Duty Tag**

The Heavy Duty Tag is developed for applications requiring long-range identification and exposure to harsh environmental conditions. The tag is weatherproofed and can also be used in explosive zones. The tag is EX-certified in compliance with the standards of EN 50014 (1992) and EN 50020 (1994) for intrinsic protection security Eex ia IIC T4/T6. The tag allows permanent mounting by means of bolts screws or rivets on the outside of a vehicle or container. The tag can be read and programmed inductively. The Heavy Duty Tag can also be read over short-range with the ProXS Blue handheld.

**Window Button**

The Window Button was especially designed to suit the interior of a passenger car and is characterized by exceptional design and excellent performance. The Window Button can optionally be equipped with push button activation for applications where driver authorization is deemed important. The Window Button can be customized with a corporate logo and customized housing colour on request.

**Window Tag**

The Window Tag is a windshield mounted tag that can easily be mounted behind the windshield of a vehicle. The Window Tag is designed for industrial applications such as the transport industry. The Window Tag is available in various colours and types.

**Combi-Booster**

When configured with a proximity card this solution will allow a driver ID badge and vehicle ID to be read simultaneously. As a result vehicle and driver ID are combined and fleet managers can keep track of who is driving what vehicle. This combined vehicle and driver ID is a unique patented NEDAP feature incorporated in the Combi-Booster.

The tag circuit is energized by lithium batteries with a lifetime of 8 to 10 years. The tags are available in a Read/Only and Read/Write version.

Read Only tags are factory pre-programmed to conform to a designated customer code and a tag number. In contrast to other AVI systems Nedap programs all readers and tags with a customer code to offer additional user security in identification. In addition to the customer code, tags are also programmed with a unique 8-character tag number.

The Read/Write tags can be programmed inductively on site, this allows for dynamic changes in the identification characteristics of the tag.

The TRANSIT tags feature an integrated mounting device to provide for ease of installation.

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The ProXS HT card is a unique proximity tag designed to be permanently mounted behind the windscreen of a vehicle. Its design allows it to withstand the extreme temperature variances associated with windscreen mounting, without deforming. Standard proximity cards will deform as a result of the rising temperatures in a vehicle, leading to degradation in reading performance. The ProXS HT card is laser engraved with a unique identification number and can be customised with full colour printing. The ProXS HT card can be used in combination with the Booster and Combi-Booster. Additionally, it can be used as an RFID parking permit for vehicles parked on the street. The card can replace the existing paper parking permits. This unique permit also offers a reliable means for enforcement of vehicles using mobile phone parking.

Tag sets
Special tag sets are available where vehicle and driver need to be identified. These tag sets have been specially developed for installations where drivers need to be identified in addition to the vehicle, in order to gain access to a building or the pedestrian entrance of the parking facility. Both tags included in the set are factory programmed with the same 6-digit unique identification number and customer code to provide highly secured access.

- Window Button & Key fob
- Window Button switch & Key fob
- Booster & ProXS HT isocard
- Combi-Booster & ProXS HT isocard

Intelligent Telemetric Tag
Nedap can also provide tag solutions where the tag contains usage data or even operates as a microwave link between the back-box in a truck and the base station to transmit telemetric information.
Integration of inductive cards

The Booster and Combi-Booster can be applied together with inductive cards, to offer easy access to buildings combined with convenient and speedy vehicular access to the site based on the one ID card.

Simultaneous vehicle & driver ID feature

Additionally a separate ID can be programmed in the Combi-Booster hardware to enable monitoring of both vehicle and driver in flexible driver and vehicle situations offering the unique combined vehicle & driver ID feature. This is especially important in installations where an extreme high level of security is required.

Nedap offers several options in tag sets used to combine vehicle and driver tag usage.

1. TRANSIT tag to identify the vehicle
2. Proximity tag to identify the driver

The vehicle mounted TRANSIT tag can permanently stay in the vehicle. The proximity tag can be used as a means of identifying vehicles parked on-street as a part of an enforcement system.

Inductive antenna connection to TRANSIT directly

Additionally an inductive antenna can be connected to the TRANSIT reader to facilitate a gate master function. The gate master function enables short-range access control without requiring an additional inductive reader. Vehicles can be identified by means of short-range identification. Pedestrians, cyclists and motorists can enter by means of presenting their inductive tag to the connected inductive antenna.

The short-range AVI solutions are based on our proximity identification systems operating on 120/125 kHz. This inductive RFID system consists of readers that communicate through inductive coupling of its antenna with the tags. The tags are energised by the emitted electromagnetic energy supplied by the antenna of the connected reader.

Proximity technology can be implemented to offer the customer a total solution based on one ID card. The card can facilitate functions such as access control in buildings, time & attendance, cashless purchases in company restaurants and vending machines, while also being used to identify the driver of a vehicle.

Unique compatibility between long-range identification NEDAP TRANSIT and proximity identification

The Nedap TRANSIT 2.45 GHz system is fully compatible with Nedap inductive RFID of 120 Khz. The integration of both technologies in one dedicated system offers a high level of flexibility and convenience where required. Nedap offers the customer the best solution to vehicle management, by allowing for the integration of various technologies into one dedicated system according to the customer’s requirements.

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Short-range proximity identification

Short-range identification can be utilized in applications where vehicles are not in motion or where manual intervention is required.

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