Access Transceiver
Parking & Access

The access transceiver TRX-1x21-A provides a Dedicated Short Range Communication (DSRC) with on-board units and transponders for secure and hands-free Automatic Vehicle Identification (AVI) applications, such as control of parking areas, gated communities, payment applications or generating traffic statistics. Full compliance with DSRC standards according to CEN (European committee for standardization) TC278 secures interoperability with different systems.

Kapsch access transceiver TRX-1x21-A acts as the stationary communication device between DSRC vehicle transponders and an access control system. Their main purpose is to automatically identify and report the identity and the content of the on-board unit (OBU) or transponder (TRP) to the host computer. The host computer is part of the access control system and controls all peripherals such as barriers, vehicle detection sensors as well as the access transceiver.

Standard interfaces and configurable parameters secure easy installation with new and existing parking and security systems.

Features
- Easy to implement in different access systems.
- Open Software Interface for easy customer adaptations.
- Software configurable DSRC parameters.
- Ethernet and RS485/RS422 Interface (RS232 with external converter).
- Weather resistant, robust and compact housing complying IP67.
- High Security Level.
- Full compliance to DSRC standards according to CEN TC278.
- Interoperable with CEN/DSRC compliant equipment from different manufacturers.
- Multiple DSRC Applications and OBU/TRP vendors supported.

Communication Zone
The Kapsch access transceiver performs a transaction with the OBU/TRP within the communication zone. The size of this zone depends on the mounting height, the position of the transceiver, the antenna characteristics of the transceiver and the OBU/TRP, as well as the DSRC parameters configured via the software. Two different communication zones are designed to guarantee an optimal fit to the installation environment and the system requirements.
Technical features

Dimensions
- TRX-1221-A: 260 x 170 x 86 mm
- TRX-1321-A: 260 x 170 x 101 mm

Weight
- 3 kg

Housing
- Alloy die casting, RAL 9006, white aluminium

Mounting Position
- 2.5 m – 6.5 m above road

Electrical
- Voltage of power supply: 24V DC up to 48V DC ± 10%, ripple 50mV max
- Power Consumption: 12W / 4W standby
- Frequency range: 5.795 GHz – 5.815 GHz
  (5.815 GHz – 5.835 GHz for special markets)
- Channel 1: 5.7975 GHz ± 2.5 MHz
- Channel 2: 5.8025 GHz ± 2.5 MHz
- Channel 3: 5.8075 GHz ± 2.5 MHz
- Channel 4: 5.8125 GHz ± 2.5 MHz
- Radiated Power: +33dBm EIRP
- Security: Encryption, DES, 3DES

User Memory
- Data Rate (down-/uplink): 500 kbit/s / 250 kbit/s

Man-Machine Interface
- TRX-1321-A/1221-A, Serial interface RS422/RS485 (includes termination resistors; TxD and RxD only) & Ethernet/TCP/IP
- Supported Protocols: TCP/IP, BLL4, WIEGAND, EMI

Environmental Conditions
- Operation Temperature: -33°C - +55°C
- Storage Temperature: -40°C - +70°C
- Protection Classification: IP 67
- Vibrations: 3,5 mm / (1 ... 9) Hz
  10 m/s² / (9 ... 150) Hz
- Shock: 150 m/s² / 11 ms

Antenna Characteristics
- Antenna Polarization: left hand circular
- Typical communication zone at a mounting height of 5.5 m tilted, centre of lane:

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<thead>
<tr>
<th>OBU Truck</th>
<th>OBU Car</th>
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<tbody>
<tr>
<td>TRX-1221-A</td>
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Typical Installations
The transceiver is mounted at the entrance at the access area above the lane using the available infrastructure. For special requirements a transceiver bracket is available with which the transceiver is turnable in two axles.

System architecture

Kapsch Group
The companies of the Kapsch Group – Kapsch TrafficCom, Kapsch CarrierCom and Kapsch BusinessCom – are leading the international markets for Intelligent Transportation Systems (ITS) and Information and Communication Technologies (ICT). Kapsch. Always one step ahead.