

EN

# TRX-1320. Single-Lane Transceiver.



The Single-Lane Transceiver TRX-1320 is part of the TS3200-06 road-side system. The transceiver is intended for use in applications based on 5.8 GHz Dedicated Short Range Communication (DSRC) according to the European Committee for Standardization (CEN) TC278 DSRC and electronic fee collection (EFC) standards.

The transceiver is designed to be mounted overhead in a single-lane environment. The advanced design of the integral antenna ensures a well-defined zone that eliminates cross lane reading. Within the limits given by the CEN standards, the physical link characteristics of the transceiver such as frequency channel and radiated power are configurable by the host application software.

The transceiver is pre-programmed for several harmonized basic transaction schemes such as A1, CESARE/PISTA, CARDME and AutoPASS. The unit can be configured to handle several different EFC applications based on these schemes. Also the security in the transactions may be handled by the unit and this will reduce and simplify the integration work. There is also the possibility to use the Kapsch SAM-4000 SAM based security solution.

The transceiver interface to the host computer (lane controller) is based on ethernet and the TCP/IP protocol is used to transfer messages between the units. A serial interface (RS232 or RS422/RS485) is also available for service purposes or as an optional connection to the lane controller.

A built-in web server in the transceiver enables the unit to be configured simply by using an ordinary web browser.

#### Features.

- CEN DSRC compliant
- GSS compliant
- ISO/CEN EFC compliant
- A1, CESARE/PISTA, CARDME, AutoPASS compliant
- Well defined communication zone
- Compact
- Software configurable via built-in WEB server
- Rugged design complying IP67

- EN 15509 SL0/SL1 conformity
- Ethernet, TCP/IP interface to Host Computer
- RS232 or RS422/RS485 IF
- Simultaneous communication with several transponders
- Supervision and logging functionality
- Can autonomously perform parts of or complete transactions
- Built-in security functions
- SAM support



## Technical features

### DSRC Communication

In accordance with RTTT-DSRC and EFC standards:

- EN 12253:2004 DSRC physical layer
- EN 12795:2003 DSRC data link layer
- EN 12834:2003 DSRC application layer
- EN 13372:2004 DSRC profiles for RTTT applications
- EN 16312 interoperable application profile for AVI and EVR
- EN 15509 interoperable application profile for EFC
- EN ISO 14906:2004 EFC – Application interface for DSRC communications
- GSS (Global Specification for Short Range Communication)
- Frequency channels: 5.7975 GHz, 5.8025 GHz, 5.8075 GHz, 5.8125 GHz
- Emitted power max. 2 W (33dBm) EIRP
- ISO/TS 13141: 2010 EFC - Localization Augmentation Communication (LAC)
- ISO/TS 12813: 2009 EFC - Compliance Check Communication (CCC)

### EFC Functionality

Communicates with any CEN/GSS compliant transponder

Supports common transaction schemes such as: A1, CESARE/PISTA, CARDME-4, AutoPASS, etc.

Supports several EFC applications

Manages all DES and triple DES security operations according to the different transaction schemes

### Host Computer Interface

Ethernet 10/100BaseT

TCP/IP Protocol

API (Application Protocol Interface) including messages for DSRC configuration, EFC application definition and transfer of application data to/from the transponder

Optional:

- Serial IF (RS232 or RS422/RS485)
- BAC (Protocol)

### Configuration and test Interface

Web based interface for:

- TRX configuration
- Application definition
- Log management

### Cable Connector

Connector: Souriau UT0614-12S-H02

Cable: combined CAT-5 and power supply

Cable length max: 100 m

### Power Supply

Voltage: 24-48 VDC

Power consumption: max. 13W, standby 4W

### Casing

Aluminium die casting

Colour: White (antenna radome)

Stone grey, RAL7030 (housing)

### Dimensions, Weight

Width: 260 mm

Height: 170 mm

Depth:

101 mm (TRX-1320-E or R)

86 mm (TRX-1220-E)

Weight: 3 kg

### MTBF

130 000 hours

### Temperature Range

Storage: -40 °C to +70 °C

Operating: -33 °C to +55 °C  
(-40 °C tested successfully)

### Vibration

1–9 Hz, 3,5 mm

10–150 Hz, 10 m/s<sup>2</sup>

### Shock

□ 150 m/s<sup>2</sup>, 11 ms

### Housing

IP67 ref: IEC 60529

### Conformity

RoHS2

Conforms to R&TTE directive 1999/5/EC test standards:

Radio: EN 300 674-1, -2

EMC: EN 301 489-1, -3

Safety: EN 60 950-1

Human exposure: EN62311

### Models

TRX-1320-E: small communication zone, ethernet and RS232 interface

TRX-1220-E: wide communication zone, ethernet and RS232 interface

TRX-1320-R: small communication zone, ethernet and RS422/RS485 interface

### Accessories

Transceiver cable, length and connector assembly specified at time of order

Connector kit including transceiver connector

Transceiver power supply 48 VDC, 1 A

Transient and overvoltage protection for data and powerlines

SAM-4000 & SAM card reader

DTS-3000 DSRC tool-suite software

CD-ROM layer 7 driver

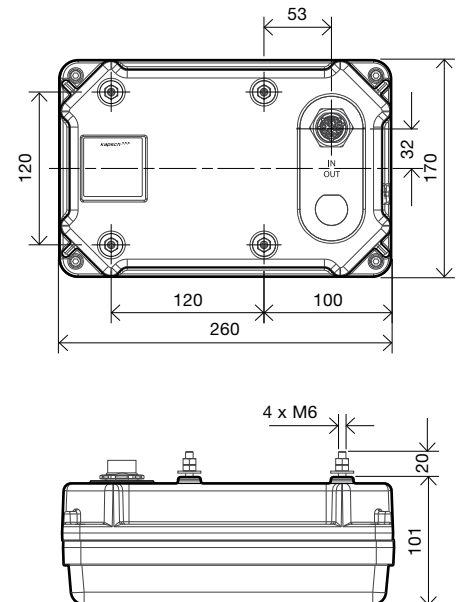
Various mounting brackets

For more details see:

“TRX-1X20 Single-Lane Transceiver System Description”

### Mounting

Four M6 bolts with 20 mm height on the transceiver rear positioned according to the drawing below



Measurements in mm.

## About Kapsch Group.

Kapsch is one of Austria's most successful technology corporations to specialize in the future-oriented market segments of intelligent transport systems (ITS) and information and communications technology (ICT). Kapsch. Always one step ahead.