The OBU-4021-01K Heavy Goods Vehicle OBU is part of the Kapsch range of transponders and on-board units that provides the driver with the possibility to change vehicle class or number of axles through a simple user interface to fit any configuration of truck and trailer in current CEN compliant DSRC-based charging systems.

The OBU-4021-01K is a smart in-vehicle communication device designed for applications which call for a standardized Dedicated Short Range Communication (DSRC) microwave link, operating at 5.8 GHz. It is an integral component in Automatic Vehicle Identification (AVI), Electronic Access Control (EAC) and Electronic Toll Collection (ETC) systems. It is fully compliant with European CEN DSRC/EFC standards.

The combination of an attractive design and functionality makes the OBU a natural choice for every issuer that wishes to increase user acceptance of its DSRC-based charging system whether based on high speed interurban multi-lane free-flow, urban congestion charging applications or plaza-based operations.

The functionality of the transponder enables interoperability according to the most common harmonised specifications, including A1, IAP, CESARE/PISTA and CARDME. The user memory can be structured in several elements and this flexibility makes the OBU-4021-01K an ideal choice for Electronic Fee Collection as well as for other applications. Data security and integration is ensured by a high degree of integration in combination with efficient integral cryptographic functions based on the DES and triple-DES algorithms.

A push button enables the user to change the axle class or other parameters specifically related to the EFC scheme, as well as check the OBU status. The current axle class as well the status of the OBU are shown by LEDs. In addition an acoustic signal (buzzer) is implemented which is controlled by appropriate the roadside equipment (RSE). Thus the user is acoustically advised if a DSRC transaction was performed successfully or if a failure occurred.

The OBU-4021-01K is designed for in-vehicle windscreen mounting and is self-installable within a few minutes, promoting user acceptability.
### Technical features

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<th>Feature</th>
<th>Specification</th>
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| **DSRC communication** | In accordance with:  
- EN 12253 Physical Layer  
- EN 12975 Data Link Layer  
- EN 12834 Application Layer  
- EN 13372 DSRC Profiles (set L1-B)  
- EN ISO 14906 EFC Application Interface Definition  
- EN 15509 (IAP)  
- GSS (Global Specification for Short Range Communication) |
| **Power Supply** | Built-in 3.0 V Lithium/Maganese battery  
Typical battery lifetime more than 5 years  
@ 20 000 transactions/year |
| **Man-Machine Interface** | Buzzer (Sound level: 55 dBA @ 1 m)  
Configurable buzzer tunes  
Push button  
4 green LEDs “2” “3” “4”  
1 green/red LED “X”  
Push button and LEDs may be used to declare vehicle class/no of axles |
| **User Memory** | Type: RAM / Flash Memory  
Capacity: 4 Kbyte  
Access only via the DSRC interface |
| **Enclosure** | IP40, Ref: IEC 60529 |
| **Casing** | Polycarbonate/ABS |
| **Weight** | 76 g |
| **Dimensions** | 114 mm x 67 mm x 28 mm |
| **Colour** | Light grey section towards windscreen (RAL 7035)  
Dark grey section towards vehicle cabin (RAL 7016) |
| **Installation** | With Velcro® hook and loop fastener fixed with adhesive to windscreen.  
Mounted at the centre in the lower part of the windscreen. |
| **Accessories** | Velcro® hook and loop fastener for mounting OBU to windscreen  
Cleaning tissue |
| **Optional marking** | Label  
Pad-print  
Ink-jet or Laser printed serial number in text and in bar code (CODE 128) |
| **Mean Time Between Failure (MTBF)** | 800 000 hours  
Ref: Bellcore Issue 6, method I, Case 3 |
| **Temperature range, storage** | +5 °C to +40 °C  
Ref: IEC 60721-3-3, Class 1K2 |
| **Temperature range, operating** | -25 °C to +85 °C  
Ref: IEC 60721-3-3, Class 5K2 |
| **Humidity** | Max 95% relative humidity, non-condensing  
Ref: IEC 60721-3-3, Class 5K2 |
| **Vibration Random** | 5 m/s²  5-200 Hz  
1 m/s²  200-500 Hz  
Ref: IEC 60721-3-3, Class 5M3 |
| **Shock** | Half-sine 300 m/s²  Duration 6 ms  
Ref: IEC 60721-3-3, Class 5M3 |
| **Free fall** | 1000 mm  
Ref: IEC 60721-3-3, Class 2M1 |
| **Conformance** | Compliant with the following EU directives:  
R&TTE 1995/5/EC  
EMC 2004/108/EC  
LVD 2006/95/EC  
RoHS 2002/95/EC  
WEEE 2002/96/EC |

**Features**
- Fully proven in single-lane and in high speed multi-lane free-flow applications
- Compliant with CEN DSRC/EFC Standards
- Compliant with most interoperability specifications such as GSS/A1/CARDME/CESARE/PISTA/EN15509 IAP
- High security based on mutual authentication and ultra-fast DES and 3-DES calculation
- 4 Kbytes of access protected memory enables multiple applications and several key generations
- Battery lifetime in excess of 5 years
- Equipped with push button and LEDs for declaration of e.g. vehicle parameters
- Configurable buzzer tunes
- Can be customised with label and pad print

**Kapsch Group**
Kapsch is one of Austria’s most successful technology corporations, specialized in the future-oriented market segments of Intelligent Transportation Systems (ITS), Railway and Public Operator Telecommunications as well as Information and Communications Technology (ICT). Kapsch. Always one step ahead.

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