OBU-5310-22A

Hybrid GNSS/DSRC On-Board Unit.

The OBU-5310 is the result of 25 years of Kapsch experience in ETC and ITS in-vehicle units. With its roots in the proven high-volume design of Kapsch GNSS OBUs, this fourth-generation OBU is capable of providing pan-European services without compromising its reliability, integrity, and security.

Hybrid GNSS and DSRC

The OBU is designed to meet the challenges and opportunities of road user charging and ITS in modern systems. Compliant with the EETS directive, it supports regional and multi-national interoperability schemes. A combination of the latest GNSS technology and multiprotocol 5.8 GHz CEN DSRC enables an efficient hybrid ETC solution benefitting from the strengths of both technologies – all combined into one compact and stylish windscreen-mounted unit. A wide range of GNSS-based ETC charging schemes are supported.

Feature-rich and secure

The implementation of the latest GNSS technology provides high accuracy and availability in even the toughest conditions such as urban canyons. It exhibits advanced TTFF features.

The OBU is designed to fulfill the high-security requirements applicable to high-volume interoperable payment systems, including features such as data encryption, authentication,

cryptographic access, and tamper detection. It provides at least 30 days of data storage for typical use and more than three hours of standalone operation on a rechargeable battery.

Installation and activation of the OBU is performed by the user in a matter of minutes. The OBU is affixed to the windscreen. It can be connected to the vehicle power system directly, or via a cigarette lighter connector.

Automatic Geo-location-based adaptation.

The OBU includes functionality to automatically adapt its behavior depending on its location, including features like position reporting and detection of charge objects. The setup of the OBU functionality and the definition of geo-objects can be managed remotely.

Intuitive HMI

The OBU features a Human-Machine Interface for the configuration and supervision of the unit. The customizable Interface provides multiple languages and character sets.

Extended list of technical features and protocols

GNSS Receiver

Simultaneous and integrated support of GLONASS and GPS. Galileo ready
- Accuracy 2.5m (CEP50)
- TTFF cold 26s typ
- TTFF aided 2s typ
- TTFF hot 1s typ
- SBAS (EGNOS, WAAS and MSAS

GSM/GPRS/LTE communication

- EN 301511 harmonized Standard for Mobile stations in the GSM 900 and DCS 1800 bands
- 3GPP 51.010-1 mobile station conformance specification – part 1
- EN 301 908 IMT cellular networks: Harmonized Standard for access to radio spectrum

DSRC communication

In accordance with:
- EN 12253 physical layer
- EN 12795 data link layer
- EN 12834 application layer
- EN 13372 DSRC profiles 0/1 L1-B
- ISO 14906 EFC / 17264 AVI application interface
- ISO 12813 (CCC)
- EN 16312 AVI Interoperable Application Interface
- EN 15509 EFC Interoperable Application Profile
- GSS (Global Specification for Short Range Communication)

Power supply

- External power 8-32V DC
- 12V DC average 40mA, peak 1000mA
- 24V DC average 20mA, peak 500mA
- 3.6V Li-Ion re-chargeable battery
- 3V LiMnO2 battery for DSRC

Human-machine interface

- 2" LCD display
- 4 buttons up/down and OK/NOK
- 2 green/red status LEDs and 1 white aux LED
- Buzzer for both DSRC and GNSS

User memory

- Data storage 128MB (flash)
- Operational data: 2MB (internal flash)
- DSRC user data: 4KB

Geo-object capabilities

- 3 geo-zone levels with individual configuration
- Supports more than 50,000 zones

Installation

- Docking station affixed to the windscreen.
- Connection to the power supply (cigarette lighter plug) via a 3m cable.
- Optional: fix installation to the vehicle's power system with ignition signal support

Housing

- Enclosure: IP41, IEC60529
- Casing: Polycarbonate/ASA
- Dimensions and Weight: 134mm x 76mm x 33mm, 236g (excluding windscreen mounting bracket)
- White section towards windscreen (NCS0603)
- Section towards vehicle cabin in diff. colors (NCS0603)

Radio compliance

- EN 300 328
- EN 303 413
- EN 301 908
- EN 300 674
- EN 301 511

Safety

- OBU: EN 62368-1
- Battery: EN 62133 2nd ed

Electromagnetic compliance

- According to EN 301 489-1, -3, -17, -19, -52

Environmental conditions

- Temperature range, storage: +5°C to +40°C
- Ref: IEC 60721-2-1, class 1K2
- Temperature range, operating: -25°C up to +80°C
- Ref: IEC 60721-3-5, class 5K2
- Humidity: Max 95 % relative humidity, non-condensing
- Ref: IEC 60721-3-5,   class 5K2

Vibration

- Random 3m2/s3 10-200 Hz,
- 1m2/s3 200-500 Hz
- Ref: IEC 60721-3-5, class 5M3

Shock

- 300m/s2, half sine, 6ms
- Ref: IEC 60721-3-5, class 5M3

Bump

- 150m/s2, half sine, 11ms
- Ref: IEC 60721-3-2, class 2M2

Freefall

- 1,000mm, each face

MTBF

- 120,000h according to Telcordia (Bellcore) SR-332

Applicable EU directives

- RED 2014/53EU
- RoHS 2 2011/65/EU
- WEEE 2012/19/EC 120,000h according to Telcordia (Bellcore) SR-332

Bluetooth

- Bluetooth Low Energy