



Onboard Unit 2X

Digitalization of public transport and emergency vehicles

YUNEX
TRAFFIC

A Siemens Business

Onboard Unit 2X – OBU2X

Hybrid V2X prioritization for public transport and emergency vehicles

The Yunex Traffic OBU2X is a hybrid V2X communication unit for vehicles. It enables the integration of vehicles into cooperative ITS systems (C-ITS). In combination with Roadside Units (RSUs) messages can be exchanged bidirectionally in real-time via DSRC or C-V2X between vehicles and infrastructure. Where no RSUs are available a cellular communication via 4G LTE to traffic management central is used to send prioritization requests from vehicle to traffic controller. With this approach the advantages of both technologies can be combined: a robust, free and standardized real-time communication via V2X and a long-range communication via LTE for areas without full RSU coverage.

Via the OBU2X public transport and emergency vehicles can be prioritized at the intersection and receive information about the priority response. At the same time other C-ITS use cases can be supported without the need for additional equipment. For example, information about the current signal phase and timing (SPaT) can be used to improve the efficiency of the prioritization. In the future also hazard alerts can be sent and received to increase the safety for pedestrians and bicyclists.

Quick and easy installation

The OBU2X is a self-contained Onboard Unit designed for quick and easy installation. Due to the fully integrated

antennas the unit can simply be mounted on the windscreen via a suction holder. While still providing the option, in most cases there is no need to mount external antennas or drill holes into the vehicle. This reduces the installation effort significantly.

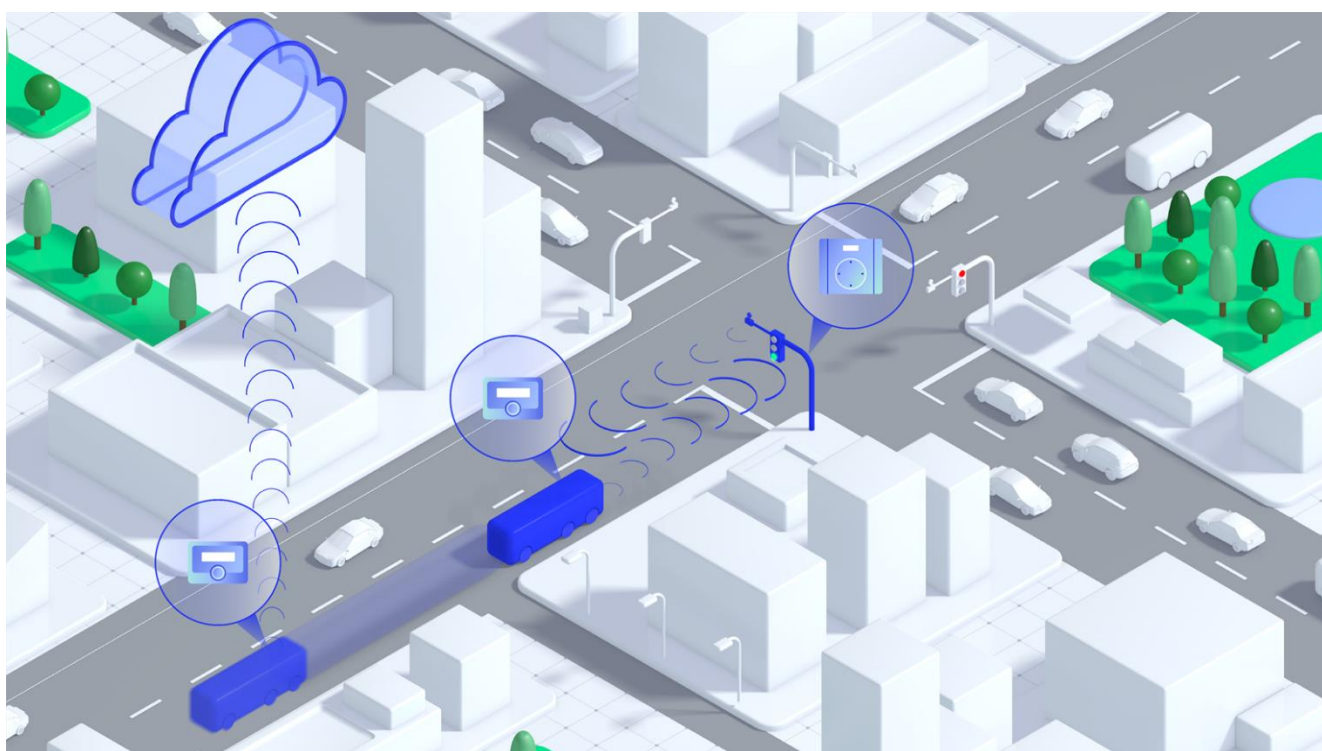
Remote monitoring and service

For remote monitoring and service the Yunex Traffic Sensus server is available. It enables remote firmware updates, trip recording and vehicle management to reduce maintenance effort and reaction times.

Future proof and secure

The integrated V2X communication module supports both 802.11p/DSRC as well as C-V2X (3GPP Rel.14/15), making it a flexible and future proof choice. The LTE module enables hybrid communication as well as remote monitoring capabilities. For maximum connectivity the unit features numerous other interfaces like Bluetooth, RS485, CAN and GPIOs to connect other systems like external displays or bus onboard equipment. Thanks to a sophisticated security module and a robust, durable design, the OBU2X is a high-performance GNSS receiver and offers positioning by dead reckoning as an option.

With the Yunex Traffic OBU2X, you benefit from an all-in-one device and lay the basis for the integration of future service options and cooperative applications.



Key Features

- V2X public transport and emergency vehicle priority solution
- Hybrid communication via DSRC/802.11p and LTE 4G for maximum flexibility and robustness
- Fully integrated antennas for plug-and-play installation with optional external antenna connection
- Numerous interfaces for connection to external systems
- High security level with secure key storage
- Sensus server for easy remote maintenance and configuration
- Supports latest V2X standards incl. CAM (R09), SREM, SSEM, SPATEM, MAPEM, DENM, IVIM
- Proven and robust technology with >800.000 devices delivered

Technical Details

- 5.9 GHz Radio: 1 x IEEE 802.11p / C-V2X (3GPP Rel. 14/15)
- All antennas integrated with ext. antenna option
- Bluetooth for tablet/smartphone data exchange and extended HMI
- GNSS with untethered dead reckoning as an option
- LTE for fast back-end connection to Sensus server
- Flame resistant plastic enclosure with protection class IP54 according to IEC 60529

Security

- Key material stored in a security access module/trusted platform module (SAM/TPM)
- Main processor of the OBU2X supports secure boot



CPU/Memory

- CPU Cortex-A7MPCore with 256MB RAM, 1024MB

Interfaces

- 802.11p/C-V2X
- Bluetooth v4.2 with Bluetooth low energy (BLE)
- CAN, RS485 and one GPIO
- LTE Cat4
- HMI + LED status indicator
- USB Service interface
- RFID optional

Mechanics

- Dimensions: 145 × 93 × 42 mm (W × H × D)
- Weight: 220 g (265 incl. battery)
- Installation: Windscreen Installation with holder

Environmental

- Operating Temperature: -40 to +85°C
- Housing: Sealed, IP54 according to IEC 60529

Power

- Input Power: 8 -32 V
- Power consumption: 5,5 W (typ.)

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