



Roadside Unit 2X

High performance edge-computing for
best V2X experience

YUNEX
TRAFFIC

Roadside Unit 2X – RSU2X

The new best in Vehicle2X communication

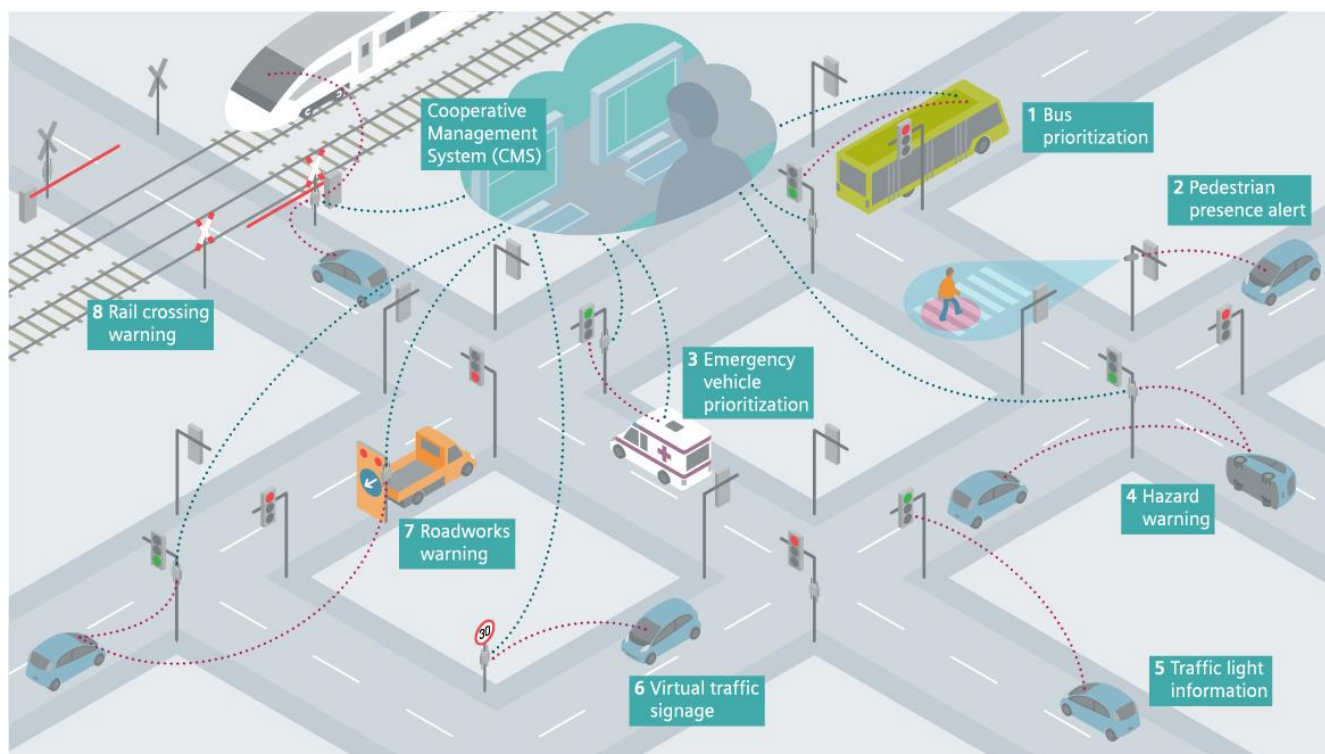
The Yunex Traffic RSU2X is the communication and application hub between roadside infrastructure and Onboard Units (OBUs). The bidirectional communication via the RSU enables both the transmission of information such as speed limits and the reception of onboard unit messages in real time. The RSU2X provides key data for a precise picture of the traffic situation, enabling more efficient traffic control, a significant reduction in accident numbers and reduction in emissions.

High level of security

The RSU2X has been developed according to the Product and Solution Security process with regular threat and risk analyses and hardening measures. These include secure passwords, secure boot, as well as the use of encrypted and authenticated TLS interfaces to protect your network infrastructure. The unit is additionally protected with a tamper response mechanism, a Hardware Security Module (HSM) and a TPM chip for secure storage of private keys.

Superior Performance and Ease of Use

It is designed for best-in-class performance in every aspect. The RSU2X provides dual-radio, dual-stack technology and can be used in 802.11p/DSRC as well as in C-V2X (3GPP Rel. 14/15) environments, making it a flexible and future proof choice. It is powered via Power-Over-Ethernet. All antennas are fully integrated inside the weatherproof housing and custom designed for maximum radio coverage of up to 2500m. The quad core processor in combination with the powerful radio modules ensures superior edge-computing performance even in high traffic load scenarios with up 4000 message verifications and 130 message signature operations per second. For maximum connectivity the unit features various additional communication interfaces like Ethernet, RS485, USB, LTE, Wi-Fi and Bluetooth 5.0. All necessary interfaces and connectors are easily accessible directly or via a service hatch.



Eight use cases for perfect Vehicle2X communication

Key Features

- Dual-Mode with support for DSRC/802.11p as well as C-V2X
- Fully integrated antennas custom designed for maximum range (up to 2500m)
- Optional external antenna connectors for remote antenna setups
- Superior performance with up to 4000 message verifications per sec & 130 message signatures per sec
- Ruggedized enclosure IP67/NEMA6P enclosure suitable for harsh environment
- High security level with tamper response and secure key storage
- Browser based service interface for easy configuration, diagnosis, and remote software update
- LTE cellular radio for long distance backhaul communication
- Supports all global V2X standards
- Service hatch for easy access to all interfaces and connectors

Technical Details

- 5.9 GHz Dual-Radio: 1 x IEEE 802.11p / C-V2X (3GPP Rel. 14/15), 1 x IEEE 802.11p
- Receiver sensitivity of up to -97 dBm (802.11p)
- All antennas integrated with ext. antenna option
- Software stack available for ITS-G5 and WAVE (IEEE 1609)
- Wi-Fi / Bluetooth hotspot for smart devices and travel time applications
- GNSS with 2.0 m CEP position accuracy and WAAS corrections support (GPS, Galileo, GLONASS, Beidou)
- 2 x Ethernet with one Power over Ethernet for power supply
- LTE for cellular backhaul (plan not included)
- Browser based WebGUI for remote diagnosis and configuration
- Sealed weatherproof enclosure and connectors with waterproof service hatch
- ~2500 meter range, open-field, line-of-sight

Security

- Hardware Security Module (HSM) for secure storage of V2X private keys and signature generation
- Trusted platform module (TPM) for secure storage (e.g. for X.509 certificates)
- Tamper response mechanism



CPU/Memory

- Quad core CPU at 1200 MHz for edge computing
- 3 GB DDR RAM
- 16 GB Flash

Performance

- Up to 4000 message verifications per second
- Up to 130 message signatures per second

Interfaces

- 1 x 802.11p/C-V2X + 1x 802.11p
- 2 x RJ45 100/1000 MBit Ethernet
- 1 x 802.11 b/g/n Wifi & Bluetooth 5.0 BR/EDR/BLE
- 1 x RS485
- 1 x LTE Cat4
- 1 x internal mPCIe slot for future extension

Mechanics

- Dimensions: 30 H x 28 W x 10 D cm
12" H x 11" W x 4" D
- Weight: approx. 3kg / 7 pounds
- RSU2X Shell: Plastics

Environmental

- Operating Temperature: -40 to +85°C
-40 to +185°F
- Housing: Sealed, IP66, IP67, NEMA 6P

Power

- Input Power: 48 V PoE+ (802.3at)
- Power consumption: 12 W (typ.)

Yunex Traffic

9225 Bee Cave Rd
Austin, TX 78733

Email: yunex.traffic.mobility@siemens.com

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