Kapsch TrafficCom

Kapsch CBX-9360.

V2X Onboard Communication Unit.

CBX-9360 is an onboard C-V2X communication box from Kapsch. It provides 3GPP C-V2X wireless communication for both the ETSI ITS G5 and IEEE WAVE standards for applications within the Cooperative ITS (C-ITS) environment and ITS applications based on communication technology in general. Equipped with various interface options it is ready to cover all V2X needs from a mobile onboard unit perspective. The CBX-9360 provides fast data exchange between vehicles and the infra-structure e. g. Traffic Management Center or Signal Controllers to enable full capabilities of cooperative systems.

CBX-9360 comes with LTE-V2X PC5 sidelink capabilities.

The C-V2X Onboard Communication Unit supports 5.9GHz radio channels compliant to 3GPP Rel.14 C-V2X PC5 sidelink standards and is based on a high performance Linux driven dual-core 64 Bit single board computer platform utilizing extensive interface capabilities. Besides standard 12/24V power supply it provides in addition a Power Over Ethernet (PoE) feed-in and passive cooling.

The versatile platform comes with standard compliant C-V2X communication stack as needed for deployment in IEEE WAVE™ and ETSI ITS G5 based cooperative systems.

The CBX-9360 is ready for a complete integration within the C-ITS environment. The communication capabilities cover besides the 3GPP C-V2X wireless communication also cellular (LTE) integration and Wi-Fi or Bluetooth options to stay fully connected to a designated HMI or a dedicated management center. Additional physical interfaces like Gigabit Ethernet, USB and GPIOs enable customer and applications specific adaptions and communication possibilities.

As mobile unit it completes the full end-to-end V2X solution from Kapsch, consisting of V2X Roadside Units and the dedicated Connected Mobility Control Center (CMCC) Software.

Independently if it is used in emergency vehicles to ensure traffic light preemption, on public transport means to keep the bus on schedule, to increase safety while creating awareness of service vehicles or in different pilots, demonstrating the current and future possibilities of Connected Vehicles (V2X), the CBX-9360 covers all these opportunities in one unit.

Technical features

ITS communication standards
- C-V2X 3GPP Rel.14
- SAE J2735
- ETSI ITS-G5 standard set
- IEEE WAVE™ standard set

Wireless communication
- Wi-Fi module
- Bluetooth module
- Cellular modem module (3G/LTE)

Power supply
- 12/24V
- PoE 802.3at-2009

Security
- Hardware Security Module
- ECC

C-V2X radio characteristics
- 3GPP C-V2X Rel. 14 radio
- Freq. band: 5.850 to 5.925 GHz
- 10/20 MHz channel spacing
- LTE-V2X PC5 sidelink
- Sensitivity: typ.-95 dBm
- 2nd antenna for diversity

Positioning and timing
- Multi-GNSS (GPS, GLONASS, Galileo, BeiDou)
- SBAS (EGNOS, WAAS)
- RTK* capability (High precision GNSS)

* optional

External interfaces
- 3x GP input & 3x GP output
- 2x 5.9 GHz antenna (Fakra Z)
- 1x GNSS antenna (Fakra C)
- 1x Wi-Fi/BT antenna (Fakra I)
- 2x LTE antenna (Fakra D)
- GbE & PoE* (RJ45)

* optional

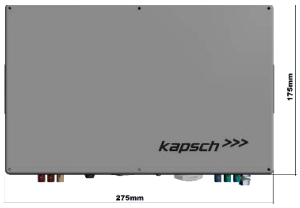
General conformity
- FCC
- CE
- Experimental license needed for C-V2X operation in US

Computer platform
- 1,33 GHz, 64 Bit, dual core
- x86 CPU architecture
- 1GB RAM ECC
- 4GB Flash
- uSD / SSD* extension

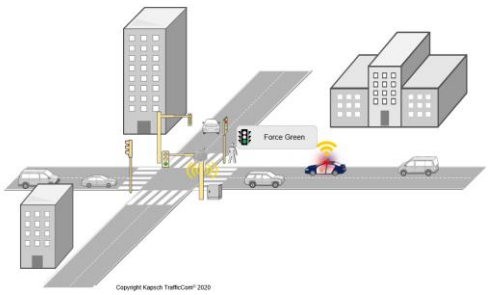
*optional

Enclosure
- IP 31
- Aluminum base
- Dimensions: 275x175x70 mm

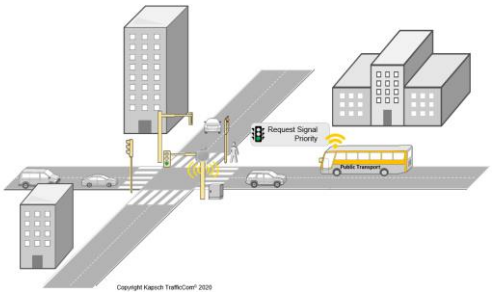
Environmental conditions
- Operation: -40°C to 75°C
- Storage: -40°C to 85°C



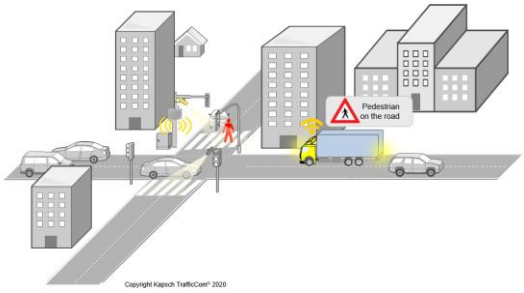
The CBX-9360 can be used in a variety of applications to enable vehicles to receive the traffic signal phase and timing and requesting traffic light prioritization and many more to increase safety and efficiency at once.



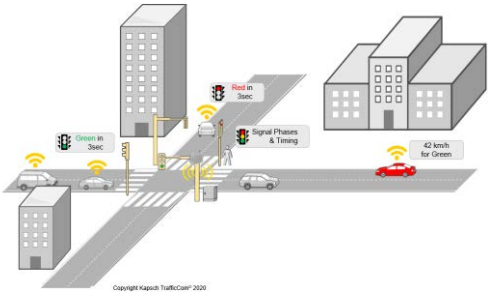
Emergency Vehicle Preemption



Transit Signal Priority



Vulnerable Road User



Green Light Optimal Speed Advisory

Kapsch TrafficCom AG | Am Europlatz 2 | 1120 Vienna | Austria | P +43 50 811 0 | ktc.info@kapsch.net | www.kapsch.net | www.kapschtraffic.com