Kapsch TrafficCom

Kapsch RIS-9360.

V2X Roadside ITS Station.

RIS-9360 is the latest generation Kapsch 5.9GHz Roadside Unit (RSU). RIS-9360 provides 3GPP C-V2X (LTE-V2X) wireless communication for both the ETSI ITS G5 and IEEE WAVE standards for applications within the Connected Vehicle and Cooperative ITS (C-ITS) environment and ITS applications based on communication technology in general. Various configuration options and open interfaces contribute to the scalable and future-proof RIS-9x60 platform. The RIS-9360 provides fast data exchange between vehicles and the infrastructure, e. g., Traffic Management Center or Signal Controllers to enable full capabilities of cooperative systems

The RIS-9360 V2X Roadside Unit supports a 5.9GHz C-V2X (LTE.V2X) radio channel. The RIS-9x60 family is based on a ruggedized high performance Linux driven dual-core 64 Bit single board computer platform, utilizing extensive interface capabilities while keeping the advantages of Power Over Ethernet (PoE) feed-in and passive cooling.

Due to its modular design, the product can be delivered in different hardware configurations. The modularity helps sustainable infrastructure investments with respect to evolutions within the C-ITS environment, especially in technical, legislative and standardization aspects. The IP67/NEMA 4X conform housing is made of die cast aluminum designed for long life roadside deployments in rural and urban environments.

The product comes with a standard compliant V2X communication stack as needed for deployment in IEEE WAVE™ and ETSI ITS G5 based cooperative systems. RIS-9360 meets the US DOT 4.1 RSU specifications in most requirements aspects and has been certified* by OmniAir™ on hardware platform and IEEE and SAE WAVE protocol levels for the US.

The RIS-9360 works with a wide range of traffic controllers and supports various applications from SPaT, Red-Light Warning, Emergency Vehicle Preemption, Special Vehicle Priority and Vehicle Data aggregation for Traffic Operations. The RIS-9360 can be remotely configured, monitored and controlled using the Kapsch Connected Mobility Control Center (CMCC) solution and also provides open interfaces for 3rd party integration.

*) except access layer C-V2X radio parameters.

Technical features

ITS protocol standards
- LTE-V2X 3GPP Rel.14
- SAE J2735 2016
- ETSI ITS-G5 standard set
- IEEE WAVE 2016 standard set

C-V2X radio characteristics
- 3GPP LTE-V2X Rel.14
- Freq. band: 5.855 – 5.925 GHz (LTE B47)
- 10MHz / 20MHz, PC5 sidelink
- Output power: 20 dBm (power class 3)
- Sensitivity: typ. -95 dBm
- Antenna 2 (for diversity)

Power supply
- PoE 802.3at-2009 < 25 W max.

Positioning and time (pps)
Multi GNSS (GPS, GLONASS, Galileo, BeiDou)

External interfaces
- 2 x 5.9 GHz Antenna 50 Ohm, N female
- 1 x GBit Ethernet (1 x PoE feed-in)
- 1 x GPS, N female
- 2 x LED, 3-col.(power, status) +2 x

Security
- ECC
- Hardware Security Module

Environmental conditions
- Operation: -40 °C to +74 °C
- Storage: -40 °C to +85 °C
- Protection: NEMA Type 4X, IP67

MTBF
- > 100,000 hours

Mechanical / Enclosure
- IP67, Ref: IEC 60529
- Aluminium die-cast
- Dimension: 290 x 200 x 78 mm
- Weight: approx. 3 kg

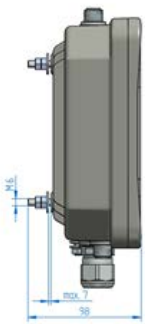
General conformity
- FCC, CE
- Experimental license needed for C-V2X mode operation in US

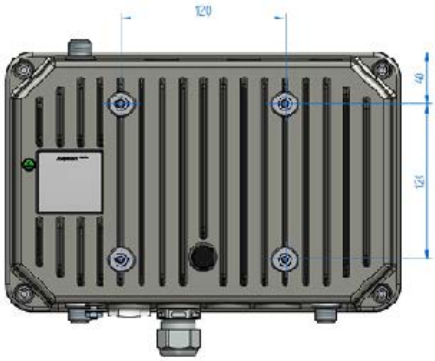
Configuration options
- Cellular modem module (3G/LTE)
- WiFi module
- BT module
- 3 x GPIO in, 3 x GPIO out
- 24 V / 48 V DC

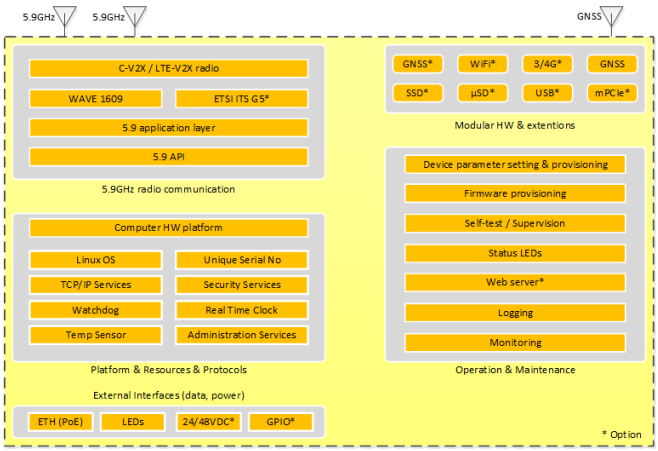
Computer platform
- 1,33 GHz, 64 Bit, dual-core
- x86 CPU Architecture, 1 GB RAM ECC
- 4 GB Flash
- SD-Card Slot
- SSD Slot

Accessories*
- 5.9 GHz Data Antenna
- GNSS Antenna
- Mounting kit
- PoE power injector

*Request datasheet







Interfaces
- IEEE 802.11p™ DSRC / ITS G5 and/or 3GPP C-V2X (LTE-V2X)
- ITS G5 and IEEE WAVE
- WAN Ethernet (PoE)
- Traffic Management Center/ Central ITS Station
- Traffic Light Controller

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