Kapsch TrafficCom

kapsch challenging limits

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 IEEE WAVE communication standards for applications within the Connected Vehicle environment and safety and mobility 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 and secure data exchange between vehicles and the infra-structure e. g. Traffic Management Center or Signal Controllers to enable full capabilities of cooperative systems.

The RIS-9360 V2X Roadside Unit supports an 5.9GHz C-V2X (LTE-V2X) radio channel. 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 is able to be delivered in different hardware configurations. The modularity helps sustainable infrastructure investments with respect to evolutions within the CV 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 SAE and IEEE WAVE™ based cooperative systems. RIS-9360 meets the US DOT 4.1 RSU Specifications in most of the requirements aspects and it has been certified* by OmniAir™ on hardware platform and IEEE and SAE WAVE protocol level for 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 solution and also provides open interfaces for 3rd party integration.

Kapsch RIS-9360.
C-V2X Roadside ITS Station.

*Except access layer C-V2X radio parameters.

Technical features

ITS communication standards
- LTE-V2X 3GPP Rel.14
- SAE J2735 2016 / 2020
- IEEE WAVE 2016 standard set
- ETSI ITS-G5 standard set*

C-V2X radio characteristics
- 3GPP LTE-V2X Rel.14
- Freq. Band*: 5.895 – 5.925GHz (LTE B47)
- 20MHz (/ 10MHz), PC5 sidelink
- Output power: 20dBm (power class 3)
- Sensitivity: typ. -95dBm
- Antenna 2 (2nd for diversity)

Power supply
- PoE 802.3at-2009 < 25W max
- 24V / 48V DC

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

External interfaces
- 2 x 5.9GHz Antenna 50Ohm, 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
- Hardware Security Module, ECC
- FIPS 140-2 level 3 compliant, CC EAL4+

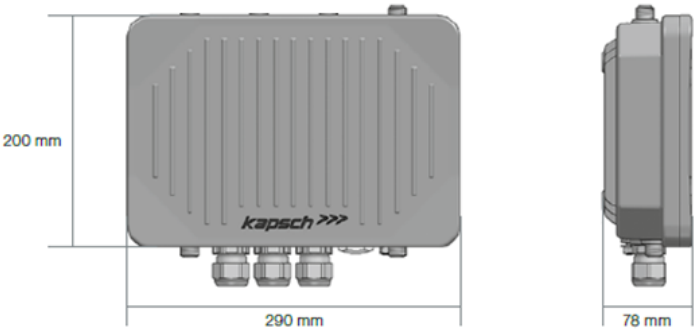
Environmental conditions
- Operation: -40°C to +74°C
- Storage: -40°C to +85°C
- Protection: NEMA Type 4X, IP67

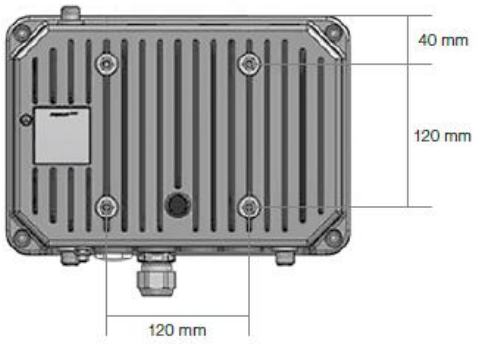
MTBF
- >100.000 hours

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

General conformity
- FCC*, CE *

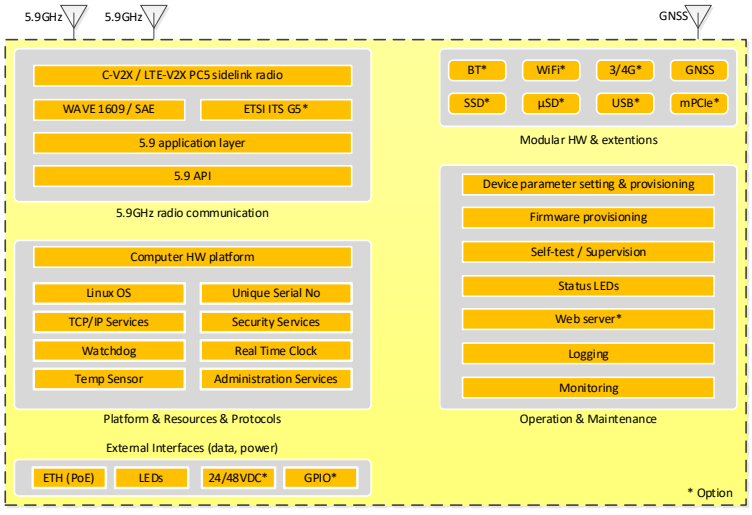
Configuration options **
- Cellular modem module (3G/LTE)
- BT / WiFi module
- 3 x GPIO in, 3 x GPIO out





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

Interfaces
- 3GPP C-V2X (LTE-V2X)
- IEEE WAVE /SAE or ITS G5 protocols
- WAN Ethernet (PoE)
- Traffic Management Center / Central ITS Station - CMCC Traffic Light Controller



Accesories**
5.9GHz Antenna
GNSS Antenna
Mounting kit
PoE power injector

* Please consider local radio spectrum regulations.
** Request for datasheet

