C-ITS ON-BOARD UNIT (OBU)

STANDALONE IN-VEHICLE COOPERATIVE ITS UNIT FOR LARGE SCALE DEPLOYMENTS

OVERVIEW

The Q-Free C-ITS on-board unit (OBU) connects vehicles to infrastructure (V2I) and creates a safer, more seamless driving experience for all. It is a complete standalone unit that supports all known requirements of Cooperative ITS (C-ITS) pilots, including privacy and security.

Make your fleet of vehicles safer, smarter, and more connected with our simple, aerodynamic OBU that supports a variety of human interaction. Designed to address the needs of connected vehicles, the C-ITS OBU supports a variety of vehicle safety services and commercial applications.

Quickly and seamlessly set up a full end-to-end application involving roadside stations and personal stations (smartphones), all connected to central ITS stations running cloud services. A wide variety of demonstration C-ITS applications and API are available to aid the rapid development of new services and can be activated locally or remotely.

The developers toolkit includes ITS communications, ITS messaging, position and time, sensors, and test and maintenance.

The C-ITS OBU is a full hybrid communication platform based on open ISO standards. It supports the full V2X 5.9 GHz protocol stack and message sets from ETSI, ISO, and IEEE, including security.

BENEFITS

- Quickly and easily mount the antenna units inside the front windscreen and the controller unit under the seat or in the glove compartment in a matter of minutes

- Simplify the logistics of pilot projects seeking to deploy across a large fleet of vehicles

- Remotely or locally assign modular applications

- Achieve significantly better performance and security with supported user-supplied smart devices

- Display traffic information to drivers on their smartphone or tablet using a web-based interface connected to the controller unit via Wi-Fi

LOW
INTEGRATION
COSTS

SUPPORTS
HUMAN
INTERACTION

SUPPORTED STANDARDS

Architecture	ISO 21217/ETSI 320 665
ETSI transport and networking	EN 302 636 series
ETSI security standards	TS 103 097/102 940 series
EU PKI	C-ITS Point of Contact (CPOC) Protocol
ETSI media access	G5 series
IEEE	1609 series

ISO ITS STANDARDS

- ISO 21210 lower layer series for IPv6 networking
- ISO 24102 Management series
- ISO 29281 ITS Station series

ITS MESSAGES

- ETSI EN 102 637-2 Cooperative Awareness Basic Service (CAM)
- ETSI EN 302 637-3 Decentralized Environmental Notification Basic Service (DENM)
- ETSI TS 103 301 Facilities layer protocols and communication requirements for infrastructure services
- SAE J2735 DSRC Message Set Dictionary (BSM, TIM, PSM, SPAT, MAP, SRM, SSM)
- CEN ISO TS 19321 In-Vehicle Information (IVI)
- CEN ISO TS 19091 Signal Phase and Timing (SPAT), Maps (MAP), Signal Request Message (SRM), Signal Status Message (SSM)

APPLICATION ENVIRONMENTS

- Linux native applications in C/C++ for real-time, I/O, and computing-intensive tasks
- Data download, analysis, real-time view, and diagnostics
- Java-based OSGi environment for the most flexible and portable ITS applications

TECHNICAL SPECIFICATIONS

PRODUCT NUMBER

V2X OBU controller:	ITS803
V2X OBU antenna:	ITS804

HARDWARE SPECIFICATIONS

Wireless connectivity:	GSM/3G/LTE voice and internet, eSIM included, option for removable SIM
	IEEE 802.11p — two channels
	Wi-Fi AP or STA
	Bluetooth 5.1
Wired connectivity:	Gigabit Ethernet, RJ45
	CAN bus (3x)
	General purpose digital I/O
	USB-C
Power:	12-24 Volt DC, 20 Watts
	Rechargeable battery
Sensors:	GPS, Galileo, and GLONASS
	Accelerometer, gyro, and magnetometer
Audio:	Speakers built-in
Security:	Hardware security module
Main processor:	ARM® i.MX8, 4GB memory, 16GB flash drive
Enclosure:	Two piece design: Controller: 180 x 150 x 45 mm, IP41 Antenna: 100 x 30 x 20 mm, IP41

SOFTWARE SPECIFICATIONS

Operating system:	Linux, remote web management
Applications environment:	OSGi and Java, remote management
Communications and networking:	ETSI G5 and IEEE 802.11p
	ETSI GeoNetworking, IEEE 1609 WAVE
	IPv4/IPv6 and ITS Messaging

Controller unit, network connectors

Controller unit, power connector

Antenna unit