

## New Generation On-Board Unit



The New Generation On-Board Unit (NG-OBU) is a versatile integration platform for in-vehicle applications. The system is comprised of an Interface Unit, a Main Unit and application specific modules.

### INTERFACE UNIT

The system is controlled via a 7" touch screen Interface Unit. A wide viewing angle and configurable brightness ensure excellent visibility in all conditions and external buttons are easily configured for enhanced interaction.

### MAIN UNIT

The Main Unit provides an interface between the communication node, the operation centre, and any on-board devices. Depending on the requirement, dedicated interfaces can be provided including:

- › Up to two data GPRS/EDGE/UMTS/HSxPA/LTE and GPRS voice modems for voice and data transmission
- › 10/100Mbps Ethernet Interfaces
- › Standard POE 802.3af:
  - Up to 8x IP channels (up to 4 POE)
  - Up to 12x IP channels (up to 8 POE)
- › 4 configurable RS-232/RS-485/RS-422 ports are available for connection to external devices
- › Wi-Fi 802.11a/b/g/n for wireless devices integration.

### KEY FEATURES

- › Automatic Vehicle Monitoring and Fleet Management
  - NG-OBU enables accurate vehicles position tracking by utilising satellite signals (GPS, with software configurable EGNOS support, optional GALILEO and GLONASS positioning system) and dead-reckoning correction, in case of lack of signal.
- › Communication
  - The platform offers data, messaging and voice call functionalities for on-board-centre, centre-on-board and on-board-on-board communications.
- › Passenger Information Display Systems (PIDS)
  - Native text-to-speech engine for notice to passenger through integrated audio system
  - Integration with external PIDS (i.e. Ameli, Aesys, etc.) for real-time passenger information.
- › Security Video Surveillance
  - Video surveillance module for A/V recording.
- › Ticketing
  - Ticketing appliance.
- › Driver Access Control
  - By using smartcard with different profiles.
- › Passenger Counter System
  - By using POE IP Cameras.

## MOBILE VIDEO RECORDER (MVR)

As an option, the Mobile Video Recorder (MVR) video surveillance module can be hosted in the Main Unit for recording and streaming of audio/video data streams. MVR can manage up to 12 real-time audio/video channels at various resolutions and frame rates with live streaming functionality on RTP/RTSP protocols (Real-Time Transport Protocol/Real-Time Streaming Protocol). Audio/Video data can be recorded on an internal hard drive with privacy guaranteed by the high security AES/Rijndael encryption algorithm.

Alarm management allows users to configure the automatic response action following a specific event. For instance, one can decide to start a video recording, to show a text alarm on the video or to mark the recordings for easy retrieval.

MVR can be connected to an external colour monitor in order to display images coming from the installed cameras.

## CONFIGURATIONS

Several NG-OBU functionalities are available by combining the following base configurations:

- › Automatic Vehicle Monitoring (AVM)
- › Communication
- › Passenger Information Display System (PIDS)
- › Mobile Video Recorder (MVR)
- › Ticketing
- › Driver Access Control
- › Passenger Counter

## TECHNICAL DATA

### HARDWARE

Cooling system	Totally fan less
Case material	Aluminum
Operative temperature	-30°C to +70°C
Storage temperature	-40°C to +75°C
Operating humidity	Up to 95% not condensing
Input Voltage	9V to 36V DC
Power	<130W
Size (WxHxD)	200 x 120 x 280 mm
Weight	4,5 Kg (max)
Connector type	M12, DBx

### PROCESSOR/MEMORY

CPU	IMx6 QuadCore a 800 MHz (automotive range)
RAM	1GB RAM
Flash Disk	8GB eMMC
HDD	up to 2TB SATA 2.0 disk (expandable)
Operating System	Linux 4.15 to enable real-time application

### INTERFACES I/O

Wi-Fi	802.11a/b/g/n/ac AP/Client mode
3G/4G	Up to 2 module UMTS/HSPA/LTE
Ethernet	Ethernet Interface 10/100Mb/s Standard POE 802.3af. (up to 8) 4 ports Ethernet interface 10/100Mb/s 802.3 <ul style="list-style-type: none"><li>› 4x configurable ports (RS-232/RS-485/RS-422)</li><li>› 2x USB 2.0</li><li>› 4x digital inputs plus 4 digital output</li><li>› 2x digital I/O</li><li>› 2x CAN ports</li></ul>
Ports I/O	
Satellite	GPS signal accuracy 3 10m, typical 3 1.5m, better with EGNOS support <ul style="list-style-type: none"><li>› GALILEO Positioning Service</li><li>› EGNOS Positioning Service</li><li>› GLONASS Positioning Service</li></ul>
Optional satellites	
Audio	<ul style="list-style-type: none"><li>› 2x analog input</li><li>› 2x analog output at 1.5W/line</li><li>› 3x analog class D output at 20W/line</li><li>› Audio Matrix</li></ul>
Video	HDMI and LVDS connections to external display

### TETRA

Interface	Interfacing external standard TETRA devices via standard serial PEI
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### CERTIFICATION

CE marking	<ul style="list-style-type: none"><li>› Compliant to Directive 2014/53/EU</li><li>› ECE R10 (E24 R10-041738)</li><li>› EMC Directive 2004/108/EC</li></ul>
EN 50155	Directive compliant
ROHS	Directive compliance 2011/65/UE
Operating temp.	-40°C to +70°C (80°C for 10 minutes)
Vibrations	Compliant to technical rules CEI EN 60068-2-6 (2g value), CEI EN 60068-2-64 (0.1g <sup>2</sup> /Hz value)
Shock	Compliant to technical rule CEI EN 60068-2-27 (3g value)
IP protection	IP55

### MVR FEATURES

Video surveillance capture	<ul style="list-style-type: none"><li>› Up to 12 channels (even more, if available on the network) at various resolutions and frame rates.</li><li>› Dynamic text insertion (date, time..., GPS)</li></ul>
Video	Supported recording formats: MPEG4/H264/H265/MJPEG, H264 encryption on disk
Streaming	<ul style="list-style-type: none"><li>› Unicast and multicast over RTP recording and extracting</li><li>› Circular buffers for permanent recording</li><li>› Streaming of recorded videos</li><li>› Extraction of sequences (standard container)</li></ul>
Configurability	Onvif 2.2 compliancy
Remote control and maintenance	Built in web server and upgradeable firmware via network
Security	<ul style="list-style-type: none"><li>› AES Data encryption with a 128/256 bit key</li><li>› Login with user name and password via secure protocol (HTTPS)</li><li>› Portable HDD protection with double password</li></ul>

### ADDITIONAL FEATURES

Software Suites	AVM, OBC, PIS, MVR, PCS, CAN, SDK
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