

# NG-OBU

## NEW GENERATION ON-BOARD UNIT



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

### INTERFACE UNIT

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

### MAIN UNIT

The Main Unit is an interface between the communication node, the operation centre, and any on-board devices. 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 tracking of vehicles' position using 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 functions for onboard-centre, centre-onboard and onboard-onboard communications.
- **Passenger Information Display Systems (PIDS)**
  - Native text-to-speech engine for notice to passenger via 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.

## TECHNICAL DATA

Hardware	
Cooling system	Fan less
Case material	Aluminum
Operative temperature	-30°C ÷ +70°C [-22°F to 158°F]
Storage temperature	-40°C ÷ +75°C [-40°F to 167°F]
Operative humidity	up to a 95% not condensing
Input Voltage	9V to 36 V DC
Power	<130 W
Dimensions (HxWxD)	120x200x280 mm [4,72 x 7,87 x 11,02 in]
Weight	4.5 Kg (max) [9,92 lb]
Connector type	M12, DBx

Processor/Memory	
CPU	Imx6 QuadCore a 800 MHz (automotive range)
RAM	1GB RAM
Flash	8GB eMMC
Hard Disk	up to 2TB SATA 2.0 disk (expandable)
Operating System	Linux 4.15 to enable real-time application

Communications	
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
Satellite	<ul style="list-style-type: none"> <li>• GPS signal accuracy ± 10m, typical ± 1.5m, better with EGNOS support</li> <li>• GALILEO Positioning Service (option)</li> <li>• GLONASS Positioning Service (option)</li> <li>• EGNOS Positioning Service (option)</li> </ul>

I/O Interfaces	
I/O Ports	<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>
Video	HDMI and LVDS connections to external display
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>

TETRA	
Interface	Interfacing external standard TETRA devices via standard serial PEI

MVR (Mobile Video Recorder)	
Video surveillance capture	<ul style="list-style-type: none"> <li>• Up to 12 chs (even more, if available on the net) at various res. and frame rates.</li> <li>• Dynamic text insertion (date, time..., GPS)</li> </ul>
Video	Supported record. 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>

Certification Compliance	
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
Vibrations	Compliant to technical rules CEI EN 60068-2-6 (2g value), CEI EN 60068-2-64 (0.1g2/Hz value)
Shock	Compliant to technical rule CEI EN 60068-2-27 (3g value)
IP Protection	IP 65

Additional features	
Software suite	AVM, OBC, PIS, MVR, PCS, CAN, SDK

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## MOBILE VIDEO RECORDER (MVR)

As an option, the Mobile Video Recorder (MVR) video surveillance module can be hosted in the Main Unit to record and stream 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. Privacy is 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, there is the option 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 to display images 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