

# ACU-Pro 5G Automotive

ACU-Pro 5G Automotive is aimed at customers requiring the latest in terms of secure connectivity as well as a powerful computation environment. ACU-Pro 5G Automotive is available in two variants to support worldwide cellular deployment. Together with its flexible subscription management, ACU-Pro 5G Automotive forms part of ACTIA's 'end to end' solution.

ACU6-Pro 5G Automotive supports services such as New Generation eCall and tracking for anti theft systems as standard.

ACU6-Pro Automotive is designed for 12V systems.



### Wireless:

Full 5G Sub 6GHz. WiFi. Bluetooth. GNSS. RF ports for external antennas (except Bluetooth) with GNSS phantom feed.

Internal antennas for LTE1 (LTE2 WiFi and GNSS internal antennas prepared).



### Subscription:

eUICC – Connectivity subscription setup is pre-loaded with 'multi-IMSI profile'. Customer SIM can be used.



### Network:

Ethernet 1000BASE-T1 port (TC10).  
Two CAN FD interfaces.



### Processing:

System operation managed by a dual core 'system on chip'. Each 64-bit ARMv8-A Cortex A35 core offers 2800 DMIPS. LP-DDR4 RAM 1GByte and 8GByte eMMC as standard (both can be scaled upwards).



### Applications:

New Generation European eCall. Vehicle tracking. Internet access (through Ethernet and WiFi hotspot). Additional services implemented on request.



### Security:

Secure boot supported. Data security is ensured by use of a 'trusted execution environment' and 'signed software'.



### Upgrade:

Software download is supported via the electrical network/s and 'over the air' via the cellular or WiFi radio link.



### Electrical interfaces:

Generic setup: Main supply. Speaker output. Microphone input. eCall buttons with illumination. Crash signal. Dual CAN.



### Supply:

Compatible with 12V systems  
The optional battery ensures that critical functions continue if the main supply is lost and ensures clean shutdown and network de-registration.



### Internal sensors and indicators:

XYZ-axis accelerometer and gyro  
Three LEDs (1 x Red, 1 x Blue, 1 x Green)  
Temperature sensor.

**Technical specification**

**Cellular modem**

**3GPP Release 16 (5G NR FR1; 5G SA; NSA)**

- DL: 2x2 MIMO ; 256 QAM) / UL: 256 QAM

**Europe/APAC/Brazil (World):**

- 5G: n1, n3, n5, n7, n8, n20, n26, n28FB, n38, n40, n41, n77, n78
- LTE: B1, B3, B5, B7, B8, B18, B19, B20, B28FB, B38, B40, B41
- UMTS: B1, B8
- GSM: B3 (1800MHz), B8 (900MHz)

**Americas:**

- 5G: n2, n5, n25, n26, n41, n66, n71, n77
- LTE: B2, B4, B5, B7, B12, B13, B14, B17, B29(Rx), B66, B71

**WiFi and Bluetooth**

- Simultaneous access point (AP) and station mode (STA) operation 801.11 a/b/g/n/ac/ax operation on 2.4GHz, 5.0GHz and 6,0 GHz. Bluetooth 5.3.

*Note: This product is currently under development and is intended to support Bluetooth wireless technology, yet not placed in market. Final Bluetooth qualification will be completed prior to commercial release.*

**Positioning**

- Satellite positioning based on GPS, Glonass, Beidou, Galileo with optional dead reckoning. 10 positions/sec. Accuracy <3m.

**CPU**

- Dual core 64 bit ARMv8-A Cortex A35 processor.
- 1GByte LP-DDR4 RAM and 8GByte eMMC Flash as standard.
- Real time clock (RTC).

**Supply**

**Primary supply:**

- Operating voltage: 8V to 16V
- Consumption @12V: 500mA (normal)  
<8mA (standby) <5mA (standby target)  
<300µA (sleep)

**Wakeup sources:**

- Cellular SMS/IP data (when in standby mode)
- CAN activity
- Ethernet T1 via TC10
- RTC trigger
- Internal Accelerometer/Gyro
- Main supply disconnected
- eCall button (prepared in hardware)

**Backup battery:**

- 1000mAh (replaceable)

**Internal sensors and indicators**

- 3 x LEDs (Red, Green, Blue)
- XYZ accelerometer 2g – 16g
- XYZ gyro 125°/s – 2000°/s
- Temp sensor -40°C – 125°C

**Interfaces**

**Generic interfaces:**

- 2W 40hm speaker output
- Microphone input with phantom supply
- PWM crash signal input
- eCall button (with illumination)

**Serial data interfaces:**

- 1 x Ethernet 1000BASE-T1
- 2 x CAN FD

**Connectors**

- 1 x Main connector: IL-AG5-22PK-D3L2-LB
- 1 x Ethernet : Rosenberger HSD (Green)
- 4 x External RF antenna ports

**Dimensions (excl. connectors and mount)**

- W 155mm x D 114mm x H 43mm
- Weight <520g

**Environment**

- IP5K4
- Temperature: -40°C – +85°C

