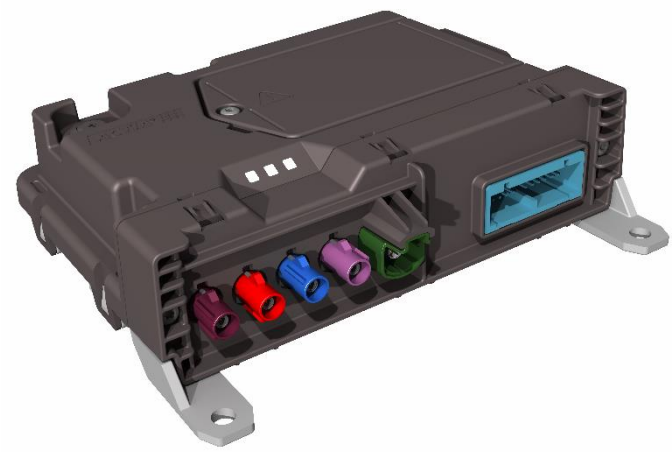
ACU6-Pro Automotive

ACU6-Pro Automotive is aimed at customers requiring the latest in terms of secure connectivity as well as a powerful computation environment. ACU6-Pro Automotive is available in three variants to support worldwide cellular deployment. Together with its flexible subscription management, ACU6-Pro Automotive forms part of ACTIA's 'end to end' solution.

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

The product consists of a fixed 'base' section and an adaptable 'customer' section. The customer section is available with a standard generic content which can be adapted (i.e. interfaces, connector type, …) on customer request. Inclusion of antennas for all radio functions as well as the optional backup supply results in a self-contained function and simplifies product integration.

ACU6-Pro Automotive is designed for 12V systems. Future evolutions to the ACU6-Pro Automotive include 24V compatibility, further enhanced telematics features and 5G cellular compliance.



Wireless:

LTE Cat 6. 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).

Network:

Ethernet 100BASE-T1 port (TC10).

CAN FD interface.

Applications:

Pan European eCall. Vehicle tracking. Internet access (through Ethernet and WiFi hotspot).

Additional services implemented on request.

Upgrade:

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

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.

Subscription:

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

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).

Security:

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

Electrical interfaces:

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

Adaptation examples: Serial interfaces (LIN, USB, etc.).

Internal sensors and indicators:

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

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ACTIA®

Technical specification

Cellular modem

LTE Advanced Pro 3GPP Rel.12, Rel.13
- 2 CA DL up to 300 Mbps Cat6 (64 QAM) / 1 UL up to 50 Mbps (16 QAM)

Europe/APAC/Brazil (World):
- FDD-LTE: B1, B3, B5, B7, B8, B18, B19, B20, B26, B28
- TD-LTE: B38, B39, B40, B41
- TD-SCDMA: B34, B39
- UMTS: B1, B3, B5, B8
- GSM: 850, 900, 1800, 1900 MHz

Americas:
- GSM: 850, 900, 1800, 1900MHz
- UMTS: B2, B4, B5
- FDD-LTE: B2, B4, B5, B12

WiFi and Bluetooth

- Simultaneous access point (AP) and station mode (STA) operation 801.11 a/b/g/n/ac operation on 2.4GHz and 5.0GHz. Bluetooth 4.2.

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)

Backup battery:
- 1000mAh (replaceable)

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)*

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 4Ohm speaker output
- Microphone input with phantom supply
- PWM crash signal input
- eCall button (with illumination)

Serial data interfaces:
- 1 x Ethernet 100BASE-T1
- 1 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

- W 155mm x D 110mm x H 40mm
- Weight <520g

Environment

- IP5K4
- Temperature: -40°C – +85°C