

ACU6-Pro Automotive

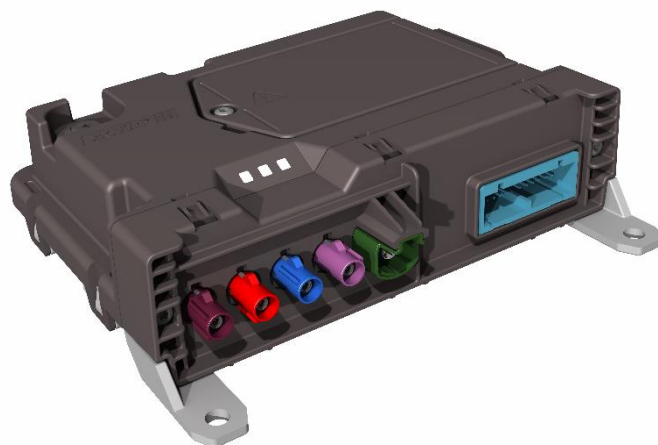
ACU6-Pro Automotive is aimed at customers requiring the latest in terms of secure connectivity as well as a powerful computation environment. The flexible concept means that the product can be configured for a wide range of light and heavy automotive applications. ACU6-Pro Automotive is available in 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. User applications are simple to implement using the onboard software development kit (SDK). These can be created by ACTIA or directly by the customer.

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 with optional dead reckoning. Internal antennas for all radio functions. RF ports for connection of external antennas with diagnostics (except Bluetooth) and GNSS phantom feed.

**Subscription:**

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

**Network:**

Ethernet 100BASE-T1 port (TC10). CAN FD interface.

**Processing:**

System operation managed by a dual core 'system on chip'. Each 64 bit ARM V8 Cortex A35 core offers 2000 DMIPS. LP-DDR4 RAM 1GByte and 8GByte eMMC as standard (both can be scaled upwards).

**Middleware:**

Software Development Kit (SDK) with libraries provides full support for customer applications such as data management and processing.

**Internal sensors and indicators:**

Data security is ensured by use of a 'trusted execution environment' and 'signed software'. An HSM is used for secure key storage

**Upgrade:**

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

**Interfaces:**

Generic setup: Main supply. Speaker output. Microphone input. eCall buttons with illumination. Crash signal. CAN.
Adaptation examples: Serial interfaces (LIN, USB, etc.).

**Supply:**

Compatible with 12V systems (24V soon available). An optional battery ensures that critical functions continue if the main supply is lost and ensures clean shutdown and network de-registration.

**Peripherals:**

XYZ-axis accelerometer, three LEDs and temperature sensor.

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 ARM V8 Cortex A35 processor (quad core as option).
1GByte LP-DDR4 RAM and 8GByte eMMC Flash as standard – both scalable upwards.
Real time clock (RTC).

Supply

Primary supply:

- Operating voltage: 8V to 36V
- Consumption @12V: 500mA (normal)
 <8mA (standby)
 <150uA (sleep)

Optional backup battery:

- 1000mAh (replaceable)

Wakeup sources:

- Cellular activity (standby mode)
- eCall button
- CAN activity
- RTC trigger
- Internal Accelerometer/Gyro
- Main supply disconnect

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 interface setup (configurable / adaptable):

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

Serial data interface:

- 1 x Ethernet 100BASE-T1

Connectors

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

Dimensions

- H 155mm x D 110mm x H 40mm
- Weight <500g

Environment

- Temperature: -40°C – +85°C
- IP54

