# Telit

# ATOP 3.5 G

**GPS | GLONASS**
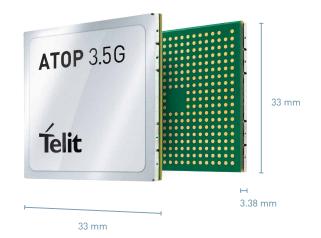**UMTS | HSDPA** 14.4 / 5.76   Embedded



33 mm

3.38 mm

33 mm

## Product Description

The ATOP 3.5G is the new Telit platform for automotive telematics on-board units (OBU-s). It simplifies creating applications such as road pricing and eCall by integrating all required technologies, including:

- 3G cellular for voice and data communication,
- GPS | GLONASS for location,
- Application processor running Java J9 Virtual Machine for simple portability and creation,
- Dedicated processor for Real-Time and connection to system via CAN, USB, Ethernet, UART, ADC,
- SmartMX smartcard CPU with Java card JCOP OS for sec urity,
- NFC for short range communication, e.g. for configuration or ID,
- Backward compatibility with ATOP 2.5G.

Three variants of ATOP 3.5G assure global network coverage.

## Key Benefits

ATOP 3.5G can stand alone as a complete solution for GNSS-3G based road pricing and eCall applications.

Or, harness the processing power and software application environment on board to complement basic services with any other added value telematics services. ATOP 3.5G can also be applied as a front end for more elaborate telematics products in the OBU.

Thanks to on-board ATOP 3.5G security resources, prod-uct developers and manufacturers can offer devices with embedded fraud prevention and tamper evidence without the extra effort of additional security precautions. These products can be used in end-to-end transaction systems requiring Common Criteria level 5+.

## Family Concept

The ATOP 3.5G is the 3G addition to Telit's telematics platform family. This flagship was created to support almost all conceivable telematics applications. Our design vision - just add a power supply, speaker and mic, some sensors, a box and ATOP can be almost any telematics application, line-fit or after-sales.

Of course automotive quality, trusted security and software competence remain our most important commitment to the customer.

All characteristics of ATOP 2.5G remain constant - form factor and pin-to-pin compatibility; same software interfaces so your code is binary compatible; same peripherals for car-connectivity; same security chip for authentication and compatible utility CPU for car connectivity. Your investment in software and hardware engineering effort is entirely re-usable.

## Applications

With so much built in functionality, application space and programming flexibility, you'll find ATOP ideal for all sorts of auto-related applications, including:

- eCall, driver safety and emergency response
- Car sharing, rental fleet management
- Mobile payments/eTolling
- Electronic vehicle range monitoring charge locationand mapping
- Usage-based insurance
- Real-time traffic messaging, rerouting and support
- Remote monitoring and control of vehicle systems
- Your latest, cutting-edge application!

# ENABLING THE IoT
# IS WHAT WE DO.

# Telit

# **ATOP** 3.5 G

## Product Features

Three regional variants:

**ATOP3.5G-W(orld) supported bands**

- 4 band GSM|GPRS|EDGE 2100/1900/850 (incl. 800) / 900
- 4 band UMTS|HSPA+ B1 / B2 / B5 (incl. B6) / B8

**ATOP3.5G-U(SA) supported bands**

- 4 band GSM|GPRS|EDGE 2100 / 1900 / 850 (incl. 800) / 900
- 4 band UMTS|HSPA+ B1 / B2 / B4 / B5 (incl. B6)

**ATOP3.5G-A(PAC) supported bands**

- 4 band GSM|GPRS|EDGE 2100 / 1900 / 850 (incl. 800) / 900
- 4 band UMTS|HSPA+ B1 / B3 (incl. B9) / B5 (incl. B6) / B8

Software update mechanism for all cores and modem (local and OTA). Dual firmware partition for fallback safety.

GNSS: GPS (L1), Glonass (l1)
EU eCall & ERA-GLONASS ready
(in-band modem, HLAP, eCall flag).

Each regional variant can have three feature variants:

- ATOP3.5 – two programmable cores
- ATOP3.5G SMX – plus programmable Security core
- ATOP3.5G SMX-NFC – plus NFC transceiver

| | W | U | A |
|---|---|---|---|
| ATOP 3.5G | • | • | • |
| + SMX | • | • | • |
| + SMX + NFC | • | • | • |

## Data

**HSPA+ 3GPP release 7 compliant**

- Downlink up to 14.4 Mbps. Uplink up to 5.76Mbps

**EDGE class 12**

- Downlink up to 236.8 kbps. Uplink up to 236.8 kbps

## Applications Environment

Three dedicated cores each with a secure runtime environment and a flexible industry standard development environment.

**Application Processor ARM11@390MHz, runs Java code**

- Open, flexible, industry standard Java VM (IBM J9)
- CDC Foundation version 1.1.2
- Foundation Profile libraries version 1.1.2
- Java APIs for Mobile Telephony, Wireless Messaging (SMS), Location (GNSS), Contactless (NFC and Security) Audio, Firmware Update Management
- Hardware abstraction for services
- Java integrated security (SSL, HTTPS, TLS, Secure boot)
- Integrated large journaled flash file system, power fail safe

**Utility Processor Cortex M3 @ 100MHz, runs 'C' code**

- For hard Real-Time and interfacing to the vehicle system
- Manages system power states
- Respected third party support e.g. AUTOSAR, CAN stacks

**Security Processor (SMX variant only) SmartMX class smartcard, runs JCOP 2.4.2 code**

- Has secure storage and execution, providing trust and storage of secrets
- Uses bank card grade security for end-to-end transaction systems requiring Common Criteria level 5+
- Crypto-CPU for RSA 2048, ECC 320, AES 256, triple-DES.

## Interfaces

- Highspeed CAN interface
- 1x USB High Speed (host /device)
- 1x USB Full speed (host or device)
- UART
- Ethernet 100
- Flexible IO's: SPI, PWM, GPIO, ADC, DAC
- Backup battery charging
- • Backup antenna connection for failsafe
- operation

## Environment

Operational Temperature range for utility and application processor -40°C to +85°C.

Storage Temperature range -40°C to +125°C.

## Qualification Package

- REACH and RoHS compliant
- CE, R&TTE, FCC, IC
- GSM (Pre-GCF, Pre-PTCRB)
- Automotive (PPAP, ISO/TS16949)
- Security (Common criteria cert.)
- EU eCall & ERA-Glonass ready

## Electrical & Sensitivity

**Output power packet mode worst case per radio technology (application core only)**

- 500 mA @ WCDMA 850 (B5)
- 630 mA @ WCDMA 2100 (B1)
- 300 mA @ EDGE class 12(4Tx)
- 350 mA @ GPRS class 12(4Tx)

**Standby GSM / W-CDMA**

- 3mA / 1.7 mA

**Supply voltage**

- Nominal: 3.8 VDC
- Range: 3.2 – 4.4 VDC (Each core plus RTC can have a separate supply)
- Peak battery current: 2200 mA

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