














Automotive

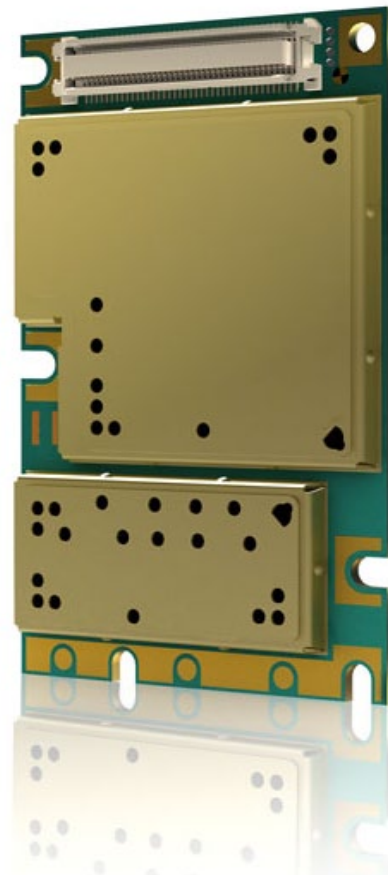
Advanced Automotive Grade Modules



Wireless Module AH3

Global Coverage with HSPA+ Performance

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|---|---------------------------------|---|---------------------------------|
|  | Automotive Grade | | |
|  | HSPA+/UMTS |  | 80 pin B2B Connector |
|  | EDGE Class 12 |  | GPS |
|  | GPRS Class 12 |  | Advanced Temperature Management |
|  | eCall compliant |  | SIM Access Profile |
|  | Antenna Diagnostics |  | GPIO |
|  | Advanced Antenna Concept (Pogo) |  | RLS Monitoring |



The new CINTERION AH3 module is the latest automotive grade product out of a long history of successful products for enhanced automotive applications. It is the first variant of a new 3G automotive platform that incorporates dedicated features such as antenna diagnostics, extended temperature range, SIM access profile and a configurable RLS function for jamming detection.

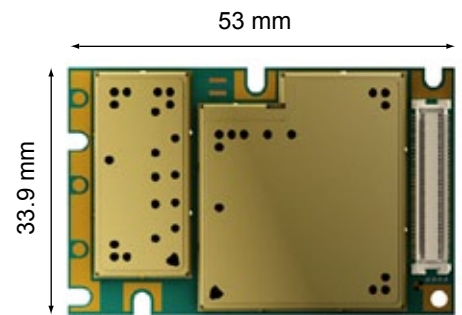
State-of-the-art chipsets with 45 nanometer technology ensure long availability and highest reliability even under ruggedized conditions. An intelligent single-sided design provides superior heat dissipation characteristics.

An 80-pin B2B connector AH3 enables flexible mounting for easy design-ins and testing. CINTERION's AH3 offers the most advanced embedded GPS capabilities with three antennas for HSPA diversity and concurrent GPS tracking that avoids GPS blanking. Based on the latest HSPA+ technology, AH3 is optimized for high bandwidth for speeds up to 14.4 Mbps for downlink and 5.7 Mbps for uplink.

AH3 comes in two flavors, as AH3-US variant that supports AWS band in Northern America and AH3-W as world variant including 900 MHz covering all other regions to ensure true global roaming.

Wireless Module AH3

Global Coverage with HSPA+ Performance



General features

- Four-Bands UMTS (WCDMA/FDD) 800, 850, 900 and 2100 MHz (AH3-W)
- Tri-Bands UMTS (WCDMA/FDD) 850, 1900 MHz and AWS 1700/2100 MHz (AH3-US)
- Quad-Band GSM: 850, 900, 1800, 1900 MHz
- UMTS / HSPA+, 3GPP release 6 / 7
- GSM / GPRS / EDGE, 3GPP release 99 / 4
- SIM Application Toolkit, release 99
- SAIC/RX Diversity Type 3i for 800/850 and 2100 MHz
- Control via AT commands (Hayes, 3GPP TS 27.007 and 27.005)
- TCP/IP stack access via AT commands
- Supply voltage range 3.3 - 4.2 V
- Dimension: 53 x 33.9 x 3.1 mm, single sided
- Temperature range -40°C to +85°C (Protection switch-off)

GPS features

- E911 A-GPS functionality via Control Plane
- Fully integrated GPS solution
- GPS dedicated AT command
- Protocol: NMEA-0183 V2.3
- GPS active antenna supply: 3V
- Tracking Sensitivity: better than -158 dBm

Specifications

- HSDPA/HSUPA data rates
DL: max. 14.4 Mbps, UL: max. 5.7 Mbps
concurrent data rate: DL 7.2 Mbps/UL 5.7 Mbps
- UMTS data rates
DL: max. 384 kbps, UL: max. 384 kbps
- EDGE class 12
DL: max. 237 kbps, UL: max. 237 kbps
- GPRS class 12
DL: max. 85.6 kbps, UL: max. 85.6 kbps
- CSD data transmission 14.4 kbps, V.110
- SMS text and PDU mode
- Remote SIM access (SIM Access Profile)
- Voice specification:
HR, FR, EFR and AMR supported
Handset, Headset and Handsfree modes
- RLS Monitor (Jamming Detection)
- TTY supported
- eCall according to 3GPP Rel8, inband modem embedded
- VDA hands-free category 2a

Approvals

- R&TTE, FCC, GCF, PTCRB, UL, IC, CE
- Automotive e-mark
- Local approvals and network operator certifications

Interfaces

- 80-pin board-to-board connector
- 2 x antenna pad for GSM/UMTS
- 1 x antenna pad for GPS
- Audio: 1 x analog, 1 x digital
- USB 2.0 high speed
- UICC/SIM card interface 3V, 1.8V
- serial interface with autobauding
- 10x GPIO
- Antenna diagnostics for GSM/UMTS/GPS antennas supported

Special features

- Firmware update via USB and serial Interface

For detailed specification please see **Hardware Interface Description**.

Improved power management

Improved power management features in the AH3 module preserve battery power necessary for car alarm or fleet management applications, resulting in reduced heat dissipation. Combined with its single-sided design for superior heat dissipation AH3 is the first choice for temperature critical telematics applications.

Intelligent antenna concept

Pogo pads are gold plated landing arrays that ensure a reliable and robust 50 Ohms antenna connection via a spring contact. The intelligent antenna concept is simple to mount and cost efficient. Two antenna pads enable diversity support, so AH3 provides improved data speed even under fluctuating 3G network conditions. The GPS antenna path is optimized for elimination of blanking on GPS for a consistent performance.

Full voice support

AH3 includes best-in-class analog audio processing supporting VDA hands-free category 2a and digital audio for quick & easy audio implementation.



CINTERION Global Support

Local engineers, a competent helpdesk, a dedicated team of R&D specialists and an advanced development center are the hallmarks of our leading support offer. The CINTERION support includes:

- Personal design-in consulting for hardware and software
- Extensive RF test capabilities
- GCF/PTCRB conform pretests to validate approval readiness
- Guidelines for local approvals and acceptances
- Regular training workshops

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Further information about our products and services is also accessible via www.cinterion.com

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