# Product summary
# SARA-R510AWS module

## LTE-M AWS IoT ExpressLink module

C

Standard

Professional

Automotive

### Designed to directly access AWS IoT Services securely over LTE-M

- Direct AWS IoT cloud access secured with hardware-based root of trust
- Optimized, easy-to-use AT command set for accelerated time-to-market
- Unburden the host processor from connectivity and cryptography tasks
- Access to AWS IoT Device and Fleet management and 200+ optional AWS services

aws

16.0 × 26.0 × 2.2 mm

u-blox

**SARA-R510AWS**

### Product description

The SARA-R510AWS is an AWS IoT ExpressLink module based on the u-blox UBX-R5 cellular chipset, aimed at fast and easy development of secure IoT devices.

By bridging the u-blox in-house chipset platform with the market-leading cloud computing services of AWS, this solution provides long-term availability and lifetime support from silicon-to-cloud.

The LTE-M module supports a comprehensive set of 3GPP Rel. 14 features that are relevant for IoT applications, like improvements to power consumption, coverage, data rate, mobility, and positioning.

The embedded AWS IoT ExpressLink certified software provides a new tailored AT command set that paves the way to AWS cloud access straight out-of-the-box, which significantly accelerates time-to-market.

SARA-R510AWS provides AWS cloud service access without the need for the customer to integrate any additional API on their MCU; every single step is handled inside the IoT module.

SARA-R510AWS is the perfect fit for new applications requiring accelerated time-to-market. It is also an ideal way to renew resource-constrained legacy applications that cannot accommodate the additional code and APIs that are usually required to access AWS cloud services.

SARA-R510AWS also offers a convenient way to locate your assets with the CellLocate service accessible via ExpressLink AT commands. Combined with an internal, hardware-based secure element, a lightweight set of AT commands, and seamless access to AWS cloud, the solution protects your business-critical data from device to cloud without heavily investing in R&D resources to master provisioning, authentication, certification, and security.

| | SARA-R510AWS |
|---|---|
| **Grade** | |
| Automotive | |
| Professional | • |
| Standard | |
| **Regions** | |
| | Multi-region |
| **Access technology** | |
| LTE bands | 1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26, 28, 66, 71, 85 |
| Data rate | M1 |
| LTE Power class | 23 dBm |
| **Compatible u-blox services** | |
| CellLocate® | • |
| **Compatible AWS IoT services** | |
| Control | AWS IoT Core, AWS IoT Jobs, AWS IoT Device management, AWS IoT Device Defender, AWS IoT FleetWise |
| Analytics | AWS IoT Analytics, AWS IoT Events, AWS IoT SiteWise, AWS IoT TwinMaker |
| **Interfaces** | |
| UART | 2 |
| USB (for diagnostics) | 1 |
| USIM | 1 |
| **Features** | |
| Root of trust: secure element | • |
| Secure boot, updates, and production | • |
| MQTT * | • |
| Ultra low deep sleep | • |
| FW update Over the Wire (OTW) | • |
| uFOTA | • |
| Host OTA | • |

M1 = LTE Cat M1 (375 kbit/s DL, 1200 kbit/s UL)
* = Accessible via AWS IoT ExpressLink AT commands

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# SARA-R510AWS module

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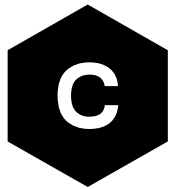
## Features

| LTE | **3GPP Release 13 LTE Cat M1** |
|---|---|
| | **3GPP Release 14 LTE Cat M1**: Coverage enhancement mode B, Uplink TBS of 2984b, CIoT optimizations, and Release Assistance Indication (RAI) |
| | Cat M1 Half-duplex, 375 kbit/s DL, 1200 kbit/s UL |

## Compatible u-blox services

| Location | CellLocate |
|---|---|
| Security | Zero Touch Provisioning for AWS IoT ExpressLink |

## Software features

| Protocols [2] | Embedded TCP/IP |
|---|---|
| | Embedded MQTT |
| | Embedded TLS/DTLS |
| Firmware upgrade | Via UART |
| | uFOTA client/server solution (firmware upgrade over the air) |
| | AWS IoT ExpressLink Host OTA (firmware update of the host MCU) |

2 = Protocols used by AWS IoT ExpressLink; MQTT accessible via AWS IoT ExpressLink AT commands

## Interfaces

| Serial | UART pre-configured with AWS IoT ExpressLink UART settings |
|---|---|
| | USB for diagnostics |
| (U)SIM | Supports 1.8 V and 3.0 V |

## Package

| 96 pin LGA: 16.0 x 26.0 x 2.2 mm, < 3 g |
|---|

## Environmental data, quality & reliability

| Operating temperature | –40 °C to +85 °C |
|---|---|
| RoHS compliant (lead-free) | |
| u-blox qualification policy, based on AEC-Q104 | |
| Manufactured in ISO/TS 16949 certified production sites | |

## Certifications and approvals

| SARA-R5 series | FCC, ISED, PTCRB, Verizon, AT&T |
|---|---|
| SARA-R5 series | AWS IoT Core qualified |
| | AWS IoT ExpressLink qualified |

## Electrical data

| Power supply | 3.8 V nominal, range 3.0 V to 4.5 V |
|---|---|
| Deep sleep current consumption | 0.5 µA |
| eDRX current consumption | 180 µA |
| LTE Cat M1 Connected mode current consumption | 195 mA (at 23 dBm) |

## Support products

| EVK-R510AWS | Evaluation kit for SARA-R510AWS |
|---|---|

## Product variants

| SARA-R510AWS | Secure LTE-M AWS IoT ExpressLink module for multi-regional use with ultra low power deep sleep mode |
|---|---|

## Further information

For contact information, see **www.u-blox.com/contact-u-blox**.

For more product details and ordering information, see the product data sheet.