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
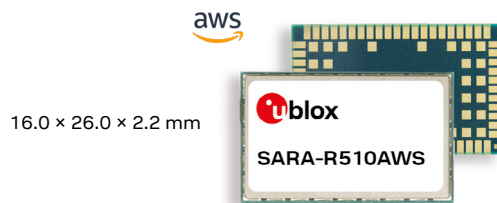
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SARA-R510AWS

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. They are 5G-ready, meaning customers will be able to (software) upgrade their deployed devices, once 5G LTE has been fully rolled out by mobile operators, greatly improving end-product scalability and lifetime.

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 has been optimized for extremely low power consumption, using less than 1 µA of current in PSM mode, and is ideal for battery-powered applications. 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®	☐
Certificate Lifecycle Control: Zero Touch Provisioning for AWS IoT ExpressLink	☐
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
DDC (I2C)	1
USIM	1
GPIO	6
Features	
Root of trust: secure element	•
Secure boot, updates, and production	•
MQTT *	•
Ultra low PSM	•
FW update via serial (FOAT)	•
uFOTA	•
Host OTA	☐
Antenna and SIM detection	•

M1 = LTE Cat M1 (375 kbit/s DL, 1200 kbit/s UL)
* = Protocol used by AWS IoT ExpressLink, not exposed.

☐ = Available in future FW version

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SARA-R510AWS module

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	Certificate Lifecycle Control: Zero Touch Provisioning for AWS IoT ExpressLink

Software features

Protocols [1]	Dual stack IPv4 and IPv6 PPP over IPv4 and IPv6 Embedded TCP/IP, UDP/IP Embedded MQTT Embedded CoAP and LwM2M Embedded TLS/DTLS SIM provisioning (BIP)
Functionalities	CellTime for robust and accurate timing reference Antenna and SIM detection
Firmware upgrade	Via UART uFOTA client/server solution (firmware upgrade over the air) AWS IoT ExpressLink Host OTA (firmware update of the host MCU)

1 = Protocols used by AWS IoT ExpressLink, not exposed.

Interfaces

Serial	8-wire UART configured with AWS IoT ExpressLink UART settings USB for diagnostics
GPIO	Up to 6 GPIOs
(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)	
Qualification according to AEC-Q104	
Manufactured in ISO/TS 16949 certified production sites	

Certifications and approvals

SARA-R5 series	FCC, ISED, GCF, PTCRB, Verizon [2], AT&T [2]
SARA-R5 series	AWS IoT Core qualified AWS IoT ExpressLink qualified

2 = Planned certifications

Electrical data

Power supply	3.8 V nominal, range 3.0 V to 4.5 V
PSM 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 PSM

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.

单击下面可查看定价，库存，交付和生命周期等信息

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