

SARA-R10 series



Single-mode LTE Cat 1bis modules

Designed to provide LTE global coverage along with indoor and outdoor positioning

- Embedded M10 GNSS platform for concurrent positioning and connectivity
- Easy migration path from legacy SARA 2G/3G designs
- Very low power consumption with eDRX and PSM power saving features
- Wi-Fi scan and u-blox CellLocate® for indoor and outdoor positioning
- World's smallest module combining LTE Cat 1bis and standalone GNSS



Standard



Professional



Automotive

16.0 × 26.0 × 2.2 mm



Product description

The SARA-R10 series features LTE Cat 1bis medium capacity data connectivity (10 Mbit/s downlink, 5 Mbit/s uplink) with very low energy consumption in the popular SARA form factor. Thanks to connectivity to ubiquitous LTE Cat 1 networks, SARA-R10 is ideally suited to a wide range of value-oriented applications that require medium data speed, global coverage, and positioning. Typical applications are asset tracking, telematics, healthcare and payment & vending.

The SARA-R10 series supports multi-band LTE and includes an embedded Wi-Fi radio to scan Wi-Fi hotspots for indoor and outdoor locations. SARA-R10 modules are designed to provide an easy migration path from legacy SARA 2G/3G designs as well as for new designs.

SARA-R10 series modules are available in two variants:

- **SARA-R10001D** provides an ideal LTE Cat 1bis solution with worldwide coverage, Wi-Fi scan capability, and all relevant certifications.
- **SARA-R10001M10D** provides the same features as the SARA-R10001D variant and also embeds the u-blox M10 GNSS platform for concurrent connectivity and positioning. It has two independent power supplies for cellular and GNSS, thus enabling maximum control by the application.

Both SARA-R10 modules support the u-blox CellLocate positioning service. Furthermore, they are both optionally available with an embedded eSIM.

The modules are professional grade and are qualified according to the u-blox qualification policy, based on the AEC-Q104 standard.

	SARA-R10001D	SARA-R10001M10D
Grade		
Automotive		
Professional	•	•
Standard		
Regions		
	Global	Global
Access technology		
LTE FDD bands	1, 2, 3, 4, 5, 7, 8, 12, 13, 20, 28, 66	
LTE TDD bands	34, 38, 39, 40, 41	
Data rate	Cat 1bis	Cat 1bis
Positioning		
Integrated GNSS receiver		•
Dedicated GNSS antenna interface		•
Compatible u-blox services		
AssistNow™		•
CellLocate®	•	•
Interfaces		
UART	2	2
USB	1	1
GPIO	6	6
Features		
eSIM	o	o
MQTT	•	•
TCP / UDP	•	•
HTTP	•	•
TLS / DTLS	•	•
Secure boot and updates	•	•
Dual stack IPv4/IPv6	•	•
FOTA	•	•
eDRX	•	•
PSM	•	•
Deep sleep mode	•	•
Backup/restore	•	•
Wi-Fi scan	•	•
Antenna dynamic tuning	•	•
SNTP	•	•

Cat 1 = 10 Mbit/s DL, 5 Mbit/s UL

o = Optional

SARA-R10 series



Features

LTE	LTE Cat 1bis (10 Mbit/s DL, 5 Mbit/s UL) 3GPP Release 14 Power saving features: PSM, eDRX, and CDRX
SMS	MT/MO PDU / Text mode SMS via SMS-C

Software features

Protocols	Dual stack IPv4 and IPv6 MQTT TCP/IP, UDP/IP HTTP TLS / DTLS GSMA SGP01/02 M2M ready (remote SIM provisioning)
Positioning	Integrated u-blox M10 chip with concurrent GNSS ¹ (GPS, BeiDou, Galileo) Dedicated GNSS antenna interface ¹
Firmware upgrade	Via FOAT and FOTA (Firmware upgrade Over The Air)

Compatible u-blox services

Location	AssistNow ¹ , CellLocate
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Electrical data

Power supply	3.8 V nominal for the modem
Power consumption	PSM: 3 µA eDRX (81.92 s): 15 µA

Interfaces

Serial	2 UART 1 USB 2.0 (high-speed, 480 Mbit/s) 1 I2C (hardware-ready)
GPIO	Up to 6 GPIOs, configurable
(U)SIM	Supports 1.8 V and 3.0 V, SIM toolkit

¹ = On SARA-R10001M10D

Package

96-pin LGA (Land Grid Array): 16.0 x 26.0 x 2.2 mm
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Environmental data, quality & reliability

Operating temperature	-40 °C to +85 °C
RoHS compliant (lead-free)	
u-blox qualification policy (based on AEC-Q104 standard)	
Manufactured at IATF 16949 certified production site	

Certifications and approvals

SARA-R10 series	PTCRB, GCF, FCC, ISED, RED, UKCA, NCC, RCM, AT&T ¹ , Verizon ¹
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¹ = Planned on a dedicated SKU

Support products

EVK-SARA-R10001D	Evaluation kit for SARA-R10001D
EVK-SARA-R10001M10D	Evaluation kit for SARA-R10001M10D

Product variants

SARA-R10001D	LTE Cat 1bis module for global use
SARA-R10001M10D	LTE Cat 1bis module with integrated u-blox M10 GNSS receiver for global use

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](#).

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