

SARA-S528NM10 module



LTE-M / NB-IoT / IoT-NTN satellite / GNSS module with u-blox chipset

Global connectivity via LTE-M / NB-IoT and satellite networks in a single hardware

- Product longevity and best support guaranteed by u-blox LTE and GNSS chipsets
- Multimode module: cellular and satellite connectivity with GNSS positioning
- Compliant with 3GPP Release 17 NTN
- u-blox M10 GNSS receiver delivers accurate and reliable positioning, concurrently with LTE
- Nested design in SARA form factor allows for easy migration to satellite connectivity



16.0 × 26.0 × 2.4 mm



SARA-S528NM10

Product description

The SARA-S528NM10 module, powered by the u-blox UBX-R52 cellular chipset and the u-blox M10 GNSS platform, offers comprehensive connectivity capabilities, including access to satellite communication. It complies with 3GPP release 17 NTN and guarantees access to satellite connectivity (GEO). With complete hardware and software ownership, u-blox ensures long-term device availability and lifetime support at the chipset level. The modules support LTE Cat M1 and LTE Cat NB2 technologies based on a comprehensive set of 3GPP Rel. 14, Rel. 15, and Rel.17 features that are relevant for IoT applications, including improvements on power consumption, coverage, data rate, and mobility. Designed for applications requiring constant network connectivity worldwide, the module leverages the GEO satellite network ecosystem to ensure seamless coverage across the globe.

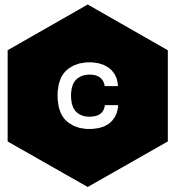
The SARA-S528NM10 module integrates the u-blox M10 GNSS receiver to deliver best-in-class positioning data concurrent with the LTE communication, making it the ideal solution for continuous or cyclic tracking applications.

Support of the NB-IoT Release 17 NTN networks enables customers to use SARA-S528NM10 everywhere in the world, making devices using these modules truly global.

Grade	
Automotive	
Professional	•
Standard	
Regions	
	Global
Access technology	
LTE bands	1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 23, 25, 26, 28, 66, 71, 85, 255, 256
Data rate	M1/NB2
LTE power class	23 dBm
Satellite	GEO
Positioning	
Integrated GNSS receiver	•
Dedicated GNSS antenna interface	•
Compatible u-blox services	
AssistNow™	•
CellLocate®	•
Interfaces	
UART	2
USB (for diagnostics)	1
DDC (I2C)	1
GPIO	6
Features	
Ultra low PSM	•
Secure boot and updates	•
HTTP, FTP	•
TCP/UDP	•
TLS/DTLS	•
CoAP	•
LwM2M	•
uFOTA	•
FW update via serial (FOAT)	•
Last gasp	•
Jamming detection	•
CellTime	•

M1 = LTE Cat M1 (588 kb/s DL, 1200 kb/s UL)
NB2 = Cat NB2 (125 kb/s DL, 140 kb/s UL)

SARA-S528NM10 module



Features

LTE	3GPP Releases: 13, 14 (partial support), 15 (partial support), and 17 (partial support) for LTE Cat M1 and LTE Cat NB2 Cat M1 Half-duplex, 588 kb/s DL, 1200 kb/s UL Cat NB2 Half-duplex, 125 kb/s DL, 140 kb/s UL
SAT	B23, B255, B256 for satellite connectivity
SMS	MT/MO PDU / text mode SMS over SG/NAS

Compatible u-blox services

Location	AssistNow™ CellLocate®
----------	---------------------------

Software features

Protocols	Dual stack IPv4 and IPv6 PPP over IPv4 and IPv6 Embedded TCP/IP, UDP/IP, FTP, HTTP, DNS Embedded MQTT and MQTT-SN Embedded CoAP and LwM2M Embedded TLS/DTLS SIM provisioning (BIP)
Positioning	Integrated u-blox M10 chip with concurrent GNSS (GPS, BeiDou, Galileo)
Functionalities	CellTime for robust and accurate timing reference Last gasp Jamming detection Antenna and SIM detection
Firmware upgrade	Via UART uFOTA client/server solution (firmware upgrade over the air)

Interfaces

Serial	8-wire UART, configurable as 2x 4-wire UART with ring indication DDC (I2C) USB for diagnostics
GPIO	Up to 6 GPIOs, configurable
(U)SIM	Supports 1.8 V and 3.0 V, SIM toolkit

Package

96 pin LGA: 16.0 x 26.0 x 2.4 mm, < 3 g

Environmental data, quality and 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 ¹

SARA-S528NM10	FCC, ISED, GCF, PTCRB, AT&T with FirstNet, Verizon, T-Mobile, Telus, RED, Orange, Deutsche Telekom, Giteki, RCM, Telstra, NCC, Skylo
---------------	--

¹ = Planned certifications

Electrical data

Power supply	3.8 V nominal, range 3.0 V to 4.5 V
PSM current consumption	1 µA
eDRX current consumption	180 µA
LTE Cat M1 Connected mode current consumption	195 mA (at 23 dBm)
LTE Cat NB2 Connected mode current consumption	135 mA (at 23 dBm)
Satellite Connected mode current consumption	TBD

Support products

EVK-SARA-S528NM10	Evaluation kit for SARA-S528NM10
-------------------	----------------------------------

Product variants

SARA-S528NM10	LTE-M and NB-IoT module with integrated u-blox M10 GNSS receiver; NTN connectivity based on GEO satellite; 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](#).

Legal Notice:

u-blox or third parties may hold intellectual property rights in the products, names, logos and designs included in this document. Copying, reproduction, or modification of this document or any part thereof is only permitted with the express written permission of u-blox. Disclosure to third parties is permitted for clearly public documents only.

The information contained herein is provided "as is". No warranty of any kind, either express or implied, is made in relation to the accuracy, reliability, fitness for a particular purpose, or content of this document. This document may be revised by u-blox at any time. For most recent documents, please visit www.u-blox.com.