

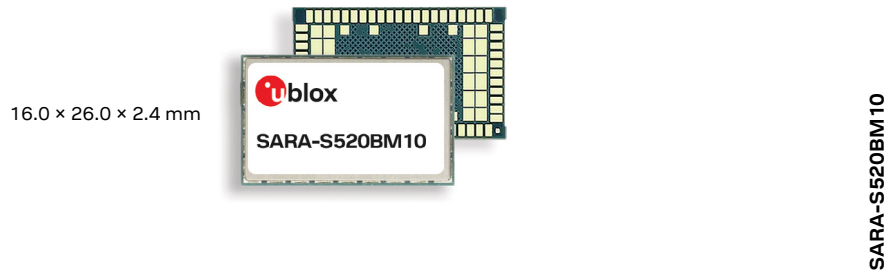
# SARA-S520BM10 module



## LTE-M / ORBCOMM satellite / GNSS module with u-blox chipset

Based on u-blox UBX-R52 chipset for multimode connectivity with satellites and cellular networks

- First u-blox cellular module compliant with ORBCOMM IDP protocol
- Multimode module: cellular and satellite connectivity with GNSS positioning
- Product longevity and best support guaranteed by u-blox LTE and GNSS chipsets
- u-blox M10 GNSS receiver delivers accurate and reliable positioning, concurrently with LTE
- Smallest multimode IoT module at ~400 mm<sup>2</sup> in the SARA form factor



<b>Grade</b>	
Automotive	
Professional	•
Standard	
<b>Regions</b>	
	Global
<b>Access technology</b>	
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
Satellite protocol	IDP
Satellite bands	L-band
Satellite power class	33 dBm
<b>Positioning</b>	
Integrated GNSS receiver	•
Dedicated GNSS antenna interface	•
<b>Compatible u-blox services</b>	
AssistNow™	•
CellLocate®	•
CloudLocate	•
<b>Interfaces</b>	
UART	2
USB (for diagnostics)	1
DDC (I2C)	1
USIM	1
GPIO	6
<b>Features</b>	
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)

### Product description

The SARA-S520BM10 module, powered by the u-blox UBX-R52 cellular chipset and the u-blox M10 GNSS receiver chip, offers comprehensive connectivity capabilities, including access to satellite connectivity. It relies on ORBCOMM network access via the IDP protocol. With complete hardware and software ownership, u-blox ensures long-term device availability and lifetime support at the chipset level.

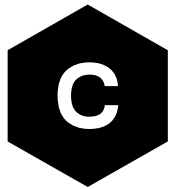
Designed for applications requiring constant network connectivity worldwide, the module leverages the GEO satellite network ecosystem to ensure seamless coverage across the globe. Support of the ORBCOMM networks enables customers to use SARA-S520BM10 everywhere in the world, making devices using this module truly global.

IDP is fully reliable protocol designed for IoT solutions that need to transmit data from everywhere in the world.

On top of the satellite connectivity, this module supports LTE Cat M1 optimized for IoT applications. It boasts enhancements in power consumption, coverage, data rate, and mobility.

The SARA-S520BM10 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.

# SARA-S520BM10 module



## Features

LTE	<b>3GPP Releases:</b> 13, 14 with partial support for LTE Cat M1 Cat M1 Half-duplex, 588 kb/s DL, 1200 kb/s UL
SAT	IDP protocol Latency less than 15 sec for 100 bytes less than 60 sec for 1000 bytes Maximum payload: 6.4 kbytes UL 10.0 kbytes DL
SMS	MT/MO PDU / text mode SMS over SG/NAS

## Compatible u-blox services

Location	AssistNow™ CellLocate® CloudLocate
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## 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	GNSS antenna interface shared with satellite Integrated u-blox M10 chip with concurrent GNSS (GPS, GLONASS, BeiDou, Galileo)
Functionalities	CellTime for robust and accurate timing reference Last gasp Jamming detection Antenna and SIM detection
Firmware upgrade	Cellular: Via UART uFOTA client/server solution (firmware upgrade over the air) Satellite: OTA via satellite connection

## 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

### Note:

SARA-S520BM10 was initially named SARA-S520M10L.

## 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

SARA-S520BM10<sup>1</sup> FCC, ISED, GCF, PTCRB, RED, RCM, NCC, Verizon, AT&T with FirstNet, T-Mobile, Telus, Deutsche Telekom, Telstra, Orange

SARA-S520BM10 AWS IoT Core qualified  
Microsoft Azure certified

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 195 mA (at 23 dBm)

Connected mode current consumption

Satellite TBD

Connected mode current consumption

## Support products

EVK-SARA-S520BM10 Evaluation kit for SARA-S520BM10

## Product variants

SARA-S520BM10 LTE-M and satellite module with integrated u-blox M10 GNSS receiver for global use

## Further information

For contact information, see [www.u-blox.com/contact-u-blox](http://www.u-blox.com/contact-u-blox).

For more product details and ordering information, see the [product data sheet](#).

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