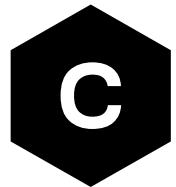


Product summary

SARA-S520BM10 module



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



Standard



Professional



Automotive

16.0 × 26.0 × 2.4 mm



SARA-S520BM10

Grade	Automotive
Professional	•
Standard	
Regions	Global
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
Satellite protocol	IDP
Satellite bands	L-band
Satellite power class	33 dBm
Positioning	
Integrated GNSS receiver	•
Dedicated GNSS antenna interface	•
Compatible u-blox services	
AssistNow™	•
CellLocate®	•
CloudLocate	•
Interfaces	
UART	2
USB (for diagnostics)	1
DDC (I2C)	1
USIM	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	•
Jammer 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	3GPP Releases: 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 gsp 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
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RoHS compliant (lead-free)

u-blox qualification policy, based on AEC-Q104
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Manufactured in ISO/TS 16949 certified production sites

Certifications and approvals

SARA-S520BM10 ¹	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
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Product variants

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