Product Summary
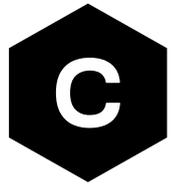# SARA-S200

Size and power optimized RPMA module for the Machine Network™

C

Ultra-small RPMA module in popular u-blox form factor

- Easy migration between u-blox 2G, 3G and 4G modules
- Ultra low power consumption yielding 10+ years battery life
- Supports QoS and NERC CIP compliant secure design
- Autonomous adaptation optimizes real world interference
- Separate broadcast channel for rapid FOTA updates

u-blox

SARA-S200

16.0 × 26.0 × 2.4 mm

Product description

The u-blox SARA-S200 module is the second generation of u-blox RPMA® modules for the Machine Network™. The LGA form factor and the industry standard 7-wire Serial Peripheral Interface (SPI) allow for easy integration with various host processors.

SARA-S200 provides an easy migration between other u-blox form factors and cellular technologies thanks to its nested design. Its low power design (50 µW average power consumption in sleep mode) means it can operate for 10 years or longer with a single battery.

With –133 dBm sensitivity and with its secured design (meeting NERC CIP and industry mandated critical infrastructure requirements), the SARA-S200 module can service multiple applications across urban, suburban, below ground, and indoor environments, all on a single network. Another unique advantage is its separate FOTA broadcast channel that can rapidly provide critical updates to millions of devices at the same time.

The end-to-end secure design ensures confidential data transport, as well as secure authenticated device firmware upgrades.

RPMA (Random Phase Multiple Access) technology represents a breakthrough in wide-area communications for IoT and M2M applications. An RPMA network can cover thousands of miles (each Access Point can support 64 k devices), encompassing entire cities or countries while supporting millions of sensors. Operating in the unlicensed 2.4 GHz ISM (Industrial, Scientific and Medical) band, the Machine Network™ features demonstrated 176 dB of link budget (FCC/IC) for superior connectivity, delivering unprecedented range, capacity, robustness and low power consumption, even in the most demanding of environments.

The Machine Network™ includes:

- Access Points communicating in a simple star topology with RPMA-enabled devices.
- Back office software enabling network management and field area data visualization.
- Device and back office integration enabled via industry standard interfaces.

Product selector

Model	Region	Access Technology	Interfaces				Features									Grade		
		RPMA®	UART	USB 2.0	7-wire SPI	GPIO	FOTA	Full hand-over	Global roaming	Ext. GNSS interface	AssistNow software	CellLocate®	Integrated GNSS	Embedded programming	Standard	Professional	Automotive
SARA-S200	Global	2.4 GHz			•		•	•	•							•	

Q = Quad-band

u-blox

SARA-S200

Features

Wireless frequency	2.4 GHz ISM
Radio spectrum	80 MHz
Occupied bandwidth	1 MHz
Modulation	Dynamic-Direct Sequence Spread Spectrum (D-DSSS)
Multiple access scheme	Random Phase Multiple Access (RPMA®)
Transmit power	+22 dBm
Receive sensitivity	–133 dBm
Data throughput	100 kB per day
Link budget	176 dB (FCC/IC)

Software features

FOTA	Separate broadcast channel for module FW update over the air. Possibility to also update the application FW.

Electrical data

Power supply	VCC_VBAT	2.2 V – 5.5 V
	VCC_3V3	3.2 V – 3.4 V (3.3 V typ.)
Power consumption	Power off	0.1 μA (typ.)
	Deep sleep mode	19 μA (typ.)
	Idle mode	21 mA (typ.)
	Active mode RX	105 mA (typ.)
	Active mode TX	320 mA (typ.)

Interfaces

Host interface	7-wire SPI that includes handshaking for deep sleep modes

Package

96 pin LGA (Land Grid Array), 16.0 x 26.0 x 2.4 mm, < 3 g

Environmental data, quality & reliability

Operating temperature	–40 °C to +85 °C

Certifications and approvals

FCC, ISED (formerly known as IC), RED (formerly known as R&TTE), and additional countries as deployed (pending).

Support products

EVK-S200	Development kit for SARA-S200

Product variants

SARA-S200	RPMA module, 2.4 GHz

Further information

For contact information, see www.u-blox.com / contact-us.

For more product details and ordering information, see the product data sheet.