



SARA-N2 series

Power-optimized NB-IoT (LTE Cat NB1) modules

The world's first NB-IoT modules

- Ultra low power consumption delivering 10+ years battery life
- Excellent extended range in buildings, underground (MCL 164 dB)
- Extended temperature range of -40 °C to +85 °C and ISO/TS16949 manufacturing
- Easy migration between u-blox 2G, 3G, and 4G modules
- Very small SARA LGA form factor for easy manufacturing



Standard



Professional



Automotive

16.0 × 26.0 × 2.4 mm



Product description

The SARA-N2 series NB-IoT modules feature extremely low power consumption in both idle and connected modes of cellular operation. They are available in a small LGA form factor and have been designed explicitly with the needs of battery-powered applications that need to communicate for long periods of time in challenging radio propagation conditions.

The modules support a comprehensive set of communication protocols with minimal signaling overhead to preserve power consumption. The feature set makes these modules ideally suited for applications where longevity of operation and reachability in poor propagation conditions are mission-critical. Smart water metering, smart gas metering, smart sensors for remote monitoring and nomadic asset tracking are perfect examples of applications where these modules could be used.

The SARA-N2 series modules target high volume, cost sensitive applications, and provide “bit pipe” communication functionalities while minimizing the customer's total cost of ownership. The modules offer easy migration from u-blox GSM (SARA-G3 series), UMTS (SARA-U2 series), and LTE Cat 1 (LARA-R2 series) modules.

The temperature range of -40 °C to +85 °C guarantees operation in harsh environments and in very compact designs.

The modules are for global use and are certified and approved by the main regulatory bodies.

The modules are manufactured in ISO/TS 16949 certified sites, with the highest production standards and the highest quality and reliability. Each module is fully tested and inspected during production.

	SARA-N200	SARA-N201	SARA-N210	SARA-N211 ^A	SARA-N280
Grade					
Automotive					
Professional	•	•	•	•	•
Standard					
Regions					
	EMEA/ APAC	APAC	EMEA	EMEA	S. America/ APAC
Access Technology					
LTE bands	8	5	20	8, 20	28
Data rate	NB	NB	NB	NB	NB
Interfaces					
UART	2	2	2	2	2
GPIO	2	2	2	2	2
Audio					
Digital audio					
Features					
Embedded UDP	•	•	•	•	•
Power Save Mode Rel.12	•	•	•	•	•
eDRX	•	•	•	•	•
Deep sleep mode	•	•	•	•	•
CoAP	•	•	•	•	•
FW update via serial	•	•	•	•	•
FOTA	•	•	•	•	•

A = ATEX variant available

NB = Cat NB1 (27.2 kb/s DL, 62.5 kb/s UL)



Features

NB-IoT	Cat NB1, single-tone uplink (up to 27.2 kb/s DL, 62.5 kb/s UL) 3GPP Release 13 FDD bands: – SARA-N200: band 8 – SARA-N201: band 5 – SARA-N210: band 20 – SARA-N211: bands 8, 20 – SARA-N280: band 28
Data Transfer	Non-IP based Small Data over NAS (SDoNAS) IP based SDoNAS
Network	Paging Idle and Connected DRX Deep sleep mode Power saving mode

Software features

Protocols	IPv4 Embedded UDP/IP Generic Constrained Application Protocol (CoAP)
Firmware upgrade	Via UART and Over the Air

Electrical data

Power supply	3.6 V nominal, range 2.75 V to 4.2 V
Power consumption	Deep-sleep mode: < 3 µA Active mode: < 6 mA Rx mode: < 46 mA Tx mode: < 220 mA

Interfaces

Serial	2 UART (data and debug interfaces)
GPIO	Up to 2 GPIOs, configurable
(U)SIM	Supports 1.8 V

Package

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

Environmental data, quality & reliability

Operating temperature	–40 °C to +85 °C
RoHS compliant (lead-free)	
Qualification according to ISO 16750	
Manufactured in ISO/TS 16949 certified production sites	

Certifications and approvals

SARA-N200	CE / RED, CCC, NCC, SRRC, NBTC, IMDA, Deutsche Telekom, China Unicom (CUCC)
SARA-N201	CCC, SRRC, China Telecom (CTCC)
SARA-N210	CE / RED, Deutsche Telekom
SARA-N211	CE / RED, NCC, ATEX, GCF, Deutsche Telekom
SARA-N280	NCC, Anatel, RCM

Support products

EVK-N200	Evaluation kit for SARA-N200
EVK-N201	Evaluation kit for SARA-N201
EVK-N210	Evaluation kit for SARA-N210
EVK-N211	Evaluation kit for SARA-N211
EVK-N280	Evaluation kit for SARA-N280

Product variants

SARA-N200	NB-IoT module for Europe / APAC; Cat NB1; band 8
SARA-N201	NB-IoT module for APAC; Cat NB1; band 5
SARA-N210	NB-IoT module for Europe; Cat NB1; band 20
SARA-N211	NB-IoT module for Europe; Cat NB1; bands 8, 20
SARA-N280	NB-IoT module for S. America / APAC; Cat NB1; band 28

Further information

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

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

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