

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

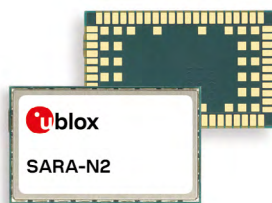


Professional



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.

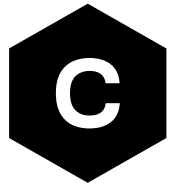
The modules are for global use and are certified and approved by the main regulatory bodies.

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](#).

Legal Notice:

u-blox reserves all rights to this document and the information contained herein. Products, names, logos and designs described herein may in whole or in part be subject to intellectual property rights. Reproduction, use, modification or disclosure to third parties of this document or any part thereof without the express permission of u-blox is strictly prohibited.

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.
Copyright © 2018, u-blox AG