Product summary

SARA-N3 series

Multi-band NB-IoT modules

Standard

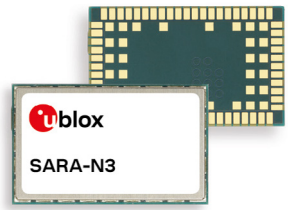
Professional

Automotive

Globally configurable NB-IoT modules ready for 3GPP Rel 14 and 5G

- Broad feature set enabling new IoT applications
- Ultra-low power consumption delivering 10+ years battery life
- Critical firmware updates delivered via uFOTA with LwM2M
- Easy migration between u-blox LTE-M and 2G modules
- Professional grade manufacturing (ISO/TS16949); qualified according to ISO 16750

16.0 × 26.0 × 2.4 mm



Product description

SARA-N3 NB-IoT multi-band modules support a selected set of features based on 3GPP Release 14. The products will be able to receive additional features and ultimately become Release 14 and 5G compliant via subsequent firmware upgrades.

SARA-N3 modules introduce several new firmware features and internet protocols for NB-IoT products, including TCP, CoAP, DTLS, LwM2M, MQTT, SSL/TLS and HTTP(S). They enable a diverse and broad set of new IoT applications and simplify customer migration to NB-IoT from other legacy cellular or unlicensed technologies. With u-blox nested design, easy migration between u-blox LTE-M, LTE Cat 1 and 2G modules is guaranteed, while enabling future-proof, seamless mechanical scalability across technologies.

SARA-N3 is a power optimized product that delivers 10+ years of battery life on a single cell primary battery, thus reducing maintenance costs. Critical firmware updates can be delivered over the air using the u-blox uFOTA client / server solution with LwM2M, which is a more lightweight solution compared to OMA-DM. LwM2M dynamically configurable objects allow device makers to develop customized features.

The SARA-N3 series is manufactured to professional grade standards with 100% automatic x-ray and optical inspection on modules, as well as 100% outgoing test, product traceability, PCN process, failure analysis and product qualification according to ISO 16750. This level of quality is paramount for highly reliable products intended for long term use in the field.

	SARA-N300	SARA-N310 [A]
Grade		
Automotive		
Professional	•	•
Standard		
Regions		
	China	Multi-region
Access technology		
LTE bands	3, 5, 8	3, 5, 8, 20, 28, +
Data rate	NB2	NB2
Interfaces		
UART	2	2
USIM	1	1
ADC	2	2
GPIO *	5	5
Features		
Last gasp	•	•
SIM detection	•	•
Antenna detection	•	•
Embedded TCP/UDP stack	•	•
Embedded HTTPS, TLS	•	•
Power Save Mode Rel.12	•	•
eDRX	•	•
Deep sleep mode	•	•
FW update via serial	•	•
FOTA / uFOTA	•	•
Dual stack IPv4/IPv6	•	•
Embedded CoAP/DTLS	•	•
Embedded MQTT-SN	•	•
Embedded MQTT		•
LwM2M device management	•	•
Jamming detection	•	•

* = RTS / CTS can also be configured as general purpose input/output
A = ATEX variant
\+ = LTE Cat NB1 bands 1, 2, 4, 12, 13, 18, 19, 26, 66, 71, 85 available in future FW
NB2 = Cat NB2 (125 kb/s DL, 140 kb/s UL)

SARA-N3 series

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Features

LTE NB-IoT	3GPP Release 13 LTE Cat NB1 fully compliant 3GPP Release 14 LTE Cat NB2 support of: Mobility enhancement, E-Cell ID, larger TB size, two HARQ processes, multi-carrier enhancement, single-tone and multi-tone uplink Data rate: up to 125 kbit/s DL, 140 kbit/s UL
FDD bands	Configurable multi-band: SARA-N300: bands 3, 5, 8 SARA-N310: bands 3, 5, 8, 20, 28, (1, 2, 4, 12, 13, 18, 19, 26, 66, 71, 85) [1]
Data transfer	Non-IP based Small Data over NAS (SDoNAS) IP based SDoNAS MT/MO SMS PDU / Text mode
Network	Rel 13 e-DRX Rel 12 LTE Power Save Mode (PSM)

Software features

Protocols	Dual stack IPv4 and IPv6 Embedded TCP/IP, UDP/IP, FTP, HTTP, PPP, DNS Embedded MQTT-SN, CoAP/DTLS Embedded HTTPS, TLS, SSL SARA-N310: MQTT, Radio policy manager SARA-N310: SIM provisioning (BIP)
Device management	SARA-N310: LwM2M with dynamically loaded objects
Functionalities	Last gasp Antenna detection SIM detection Bluetooth 4.2 (BR/EDR and BLE) [1] Configurable voltage domain 1.8 V and 3.0 V
IoT platforms	SARA-N300: CTCC Tianyi SARA-N300: CMCC OneNET
Security	Jamming detection
Firmware upgrade	Via UART SARA-N300: FOTA according to CTCC/CMCC SARA-N310: uFOTA client/server solution via LwM2M

Interfaces

Serial	4-wire UART (with flow control) and ring indication for data 2-wire UART for debug
GPIO	Up to 5 GPIOs, configurable (RTS / CTS can also be configured as general purpose input/output.)
ADC	Up to 2 10-bit ADC
USIM	Supports 1.8 V and 3.0 V SARA-N310: SIM toolkit and Bearer Independent Protocol (BIP)

1 = Considered for future FW version

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	

Electrical data

Power supply	3.6 V nominal, range 2.6 V to 4.2 V
Power consumption	PSM deep-sleep mode: 3 μA eDRX idle mode: < 1 mA Rx mode: 23 mA Tx mode at maximum power: 250 mA

Certifications and approvals

SARA-N300	CCC, SRRC, CMCC [2], CTCC [2], CUCC [2]
SARA-N310	RED, RCM, ATEX/IECEx, GCF, NCC, IMDA, NBTC, Vodafone, Deutsche Telekom

2 = Planned certifications

Support products

EVK-N300	Evaluation kit for SARA-N300
EVK-N310	Evaluation kit for SARA-N310

Product variants

SARA-N300	u-blox NB-IoT multi-band module for China
SARA-N310	u-blox NB-IoT multi-band global module

Further information

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

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