Product summary

LARA-R6 series

Single or multi-mode LTE Cat 1 modules with Secure Cloud

Standard

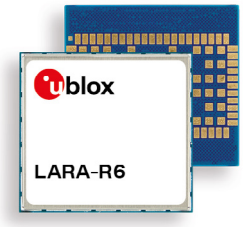
Professional

Automotive

Universal connectivity and reliable performance in smallest form factor

- Reduce logistics complexity with three regional product variants and extensive MNO certifications
- Any region, any band, any technology for simple roaming anywhere in the world
- World's smallest LTE Cat 1 module with global coverage, ideal for size-constrained devices
- Receive-diversity for reliable performance in difficult conditions
- Secure by design to always keep your device running and updated

24.0 x 26.0 x 2.6 mm



Product description

LARA-R6 series modules provide global and multi-regional coverage in a very small form factor, thereby reducing logistics complexity and increasing design flexibility. Three different product variants provide flexibility for band use and access technology by region, and include all relevant MNO certifications.

All modules in the series support receive-diversity, making them the ideal choice for deployment in North America, as well as for a diverse set of applications with demanding requirements for reliable performance in difficult coverage conditions or those that require voice functionality via VoLTE. The modules are also secure by design with a root of trust, secure boot, secure updates, and secure communications ((D)TLS) functionality. Security is regularly updated via maintenance releases to keep your device running and protected from attacks.

LARA-R6001 is the smallest LTE Cat 1 multi-mode module with global coverage available in the market. As a single SKU, it provides universal connectivity and greatly simplifies logistics. This truly global module has 18 LTE bands plus 3G/2G fallback.

LARA-R6401 provides an ideal LTE Cat 1 solution for North America, as it supports all relevant LTE bands and is designed for use on AT&T, Verizon, FirstNet, or T-Mobile. Managing a single SKU for the North American market simplifies logistics and reduces associated costs.

LARA-R6801 is a multi-regional variant specifically designed for use in EMEA/APAC/Japan and LATAM regions, supporting all relevant LTE bands and technologies.

With the three regional variants, you can maximize the reuse of development efforts. Versatile interfaces, features, multi-band and multi-mode capabilities make LARA-R6 ideally suited for a wide range of applications that require medium data speed, seamless connectivity, superior coverage, low latency and streaming data or voice. They include asset tracking, telematics, remote monitoring, alarm panels, video surveillance, connected health, and point-of-sale terminals.

	LARA-R6001 LARA-R6001D*	LARA-R6401 LARA-R6401D*	LARA-R6801 LARA-R6801D*
Grade			
Automotive			
Professional	•	•	•
Standard			
Regions			
	Global	North America	Multi-region: EMEA, APAC, Japan, LATAM
Access Technology			
LTE FDD bands	1, 2, 3, 4, 5, 7, 8, 12, 13, 18, 19, 20, 26, 28	2, 4, 5, 12, 13, 14, 66, 71	1, 2, 3, 4, 5, 7, 8, 18, 19, 20, 26, 28
LTE TDD bands	38, 39, 40, 41		
UMTS/HSPA bands [MHz]	850, 900, 1900, 2100		850, 900, 1900, 2100
GSM/GPRS bands	Q		Q
Data rate	Cat 1	Cat 1	Cat 1
Positioning			
GNSS via modem	•	•	•
Compatible with u-blox Services			
MQTT Anywhere, MQTT Flex	•	•	•
AssistNow™	•	•	•
CellLocate®	•	•	•
IoT Security-as-a-Service	•	•	•
Interfaces			
UART	2	2	2
USB	1	1	1
I2C	1	1	1
I2S	1	1	1
GPIO	9	9	9
Features			
Root of trust	•	•	•
MQTT / MQTT-SN	•	•	•
Power saving mode	□	□	□
TCP/IP, UDP/IP, HTTP/ FTP	•	•	•
TLS / DTLS	•	•	•
eDRX	•	•	•
Secure boot / update	•	•	•
RxDiversity	•	•	•
Dual stack IPv4/IPv6	•	•	•
FW update via serial (FOAT)	•	•	•
FOTA/uFOTA	•	•	•
LwM2M	•	•	•
Last gasp	•	•	•
Jamming detection	•	•	•
Antenna and SIM detection	•	•	•
VoLTE/CSFB (not for data-only variants)	•	VoLTE only	•

Cat 1= 10 Mbit/s DL, 5 Mbit/s UL
Q = Quad-band

* = Data-only module variant
□ = Available in future FW

LARA-R6 series

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Features

LTE	LTE Cat 1 (10 Mbit/s DL, 5 Mbit/s UL) 3GPP Release 10 – LARA-R6001 (Global) – LARA-R6401 (North America) – LARA-R6801 (Multi-region) Power saving features: – Rel 12 LTE power saving mode , PSM [1] – Rel 13 eDRX
UMTS	HSDPA category 8, HSUPA category 6 Bands (in MHz): – LARA-R6001: 850/900/1900/2100 – LARA-R6801: 850/900/1900/2100
GSM	GPRS/EDGE multi-slot class 33 Bands (in MHz): – LARA-R6001: 850/900/1800/1900 – LARA-R6801: 850/900/1800/1900
SMS	MT/MO PDU / Text mode SMS over IMS and via SMS-C
Voice	VoLTE or CSFB Codec: HR/FR/EFR/AMR/AMR-WB Echo cancellation and noise reduction

Compatible with u-blox services

Communication	MQTT Anywhere MQTT Flex
Location	AssistNow CellLocate
Security	Design Security: Local data protection End-to-End Security: Symmetric key management system (KMS), Data protection, Data integrity [1] Certificate Lifecycle Control: Zero touch provisioning [1], IoT Certificate Manager [1]

Software features

Protocols	Dual stack IPv4 and IPv6 Embedded TCP/IP, UDP/IP, FTP, HTTP Embedded MQTT and MQTT-SN Embedded LwM2M eSIM and Bearer Independent Protocol
Device Management	OMA LwM2M
GNSS Interfaces	Direct access to u-blox GNSS via module
Firmware upgrade	Via UART (FOAT) and USB (FOAT and EasyFlash) FOTA / uFOTA client/server solution (Firmware upgrade Over the Air)

Electrical data

Power supply	3.8 V nominal, range 3.3 V to 4.5 V Extended range 3.1 V to 4.5 V
Power consumption	Active Idle Mode: ~1.1 mA

1 = Future FW releases

Package

100 pin LGA (Land Grid Array): 24.0 x 26.0 x 2.6 mm, < 4 g

Environmental data, quality & reliability

Operating temperature	–40 °C to +85 °C
RoHS compliant (lead-free)	
u-blox qualification policy (based on AEC-Q104 standard)	
Manufactured at ISO 9001 / 14001 certified production site	

Certifications and approvals

LARA-R6001	PTCRB, GCF, FCC/ISED, RED, NCC, RCM, Giteki, AT&T
LARA-R6401	PTCRB, GCF, FCC/ISED, AT&T, FirstNet, Verizon
LARA-R6801	GCF, RED, NCC, RCM, Giteki

Interfaces

Serial	2 UART 1 USB 2.0 (high-speed, 480 Mbit/s) 1 I2C 1 I2S
GPIO	Up to 9 GPIOs, configurable
(U)SIM	Supports 1.8 V and 3.0 V, SIM toolkit
Audio	1 digital

Support products

EVK-R6	Evaluation kits for LARA-R6 series RIL software available for Android 12.0 and previous versions

Product variants

LARA-R6001 LARA-R6001D (data-only variant)	Global LTE Cat 1 module LTE FDD bands: 1, 2, 3, 4, 5, 7, 8, 12, 13, 18, 19, 20, 26, 28 LTE TDD bands: 38, 39, 40, 41 3G bands (MHz): 850, 900, 1900, 2100 2G bands: Quad-band
LARA-R6401 LARA-R6401D (data-only variant)	LTE Cat 1 module for North America LTE FDD bands: 2, 4, 5, 12, 13, 14, 66, 71
LARA-R6801 LARA-R6801D (data-only variant)	LTE module for multi-regional use LTE FDD bands:1, 2, 3, 4, 5, 7, 8, 18, 19, 20, 26, 28 3G bands (MHz): 850, 900, 1900, 2100 2G bands: Quad-band

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.