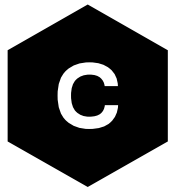




**THE DATASHEET OF
LENA-R8001M10-00C**



LENA-R8 series



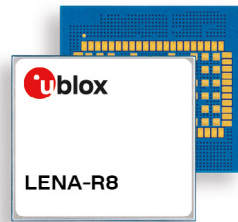
Multi-mode LTE Cat 1bis modules

Simple global connectivity with location options

- Global LTE and 2G bands for simple roaming anywhere in the world
- VoLTE and 2G audio support
- Out-of-the box, global MQTT Anywhere
- Choose between integrated or stand-alone GNSS, as well as CellLocate®
- Easy migration between u-blox form factors due to pin-compatible form factor



27.0 x 30.0 x 2.7 mm



Product description

LENA-R8 modules offer simple global LTE Cat 1 connectivity thanks to 14 LTE and four 2G bands, reducing logistics complexity for IoT devices that may be deployed in different regions requiring different band combinations.

The module series is ideal for value-oriented IoT products, targeting the tracking and telematics markets or other applications requiring broad global coverage. With broadband support and fallback to 2G networks, the modules provide the best possible roaming coverage and make possible global tracking with a single product SKU.

The support of VoLTE and 2G audio enables a variety of voice-based IoT applications in the alarm panels, eHealthcare, and aftermarket telematics application areas.

The LENA-R8 series is highly integrated, providing out-of-the-box support for the MQTT Anywhere service on the Thingstream platform, enabling seamless global roaming.

The modules are ideal for a wide range of applications with GNSS requirements, ranging from high performance stand-alone solutions to a simple out-of-the-box experience with LENA-R8001M10. This product variant includes integrated GNSS based on the u-blox M10 platform. The cellular modem and GNSS subsystems are accessible via dedicated interfaces for great usage flexibility. Both subsystems can be operated fully independently, facilitating the optimization of usage patterns to achieve the highest performances with the most efficient power consumption. The modules also support CellLocate, a network-based cellular location service.

LENA-R8 modules are small in size and pin-compatible with other u-blox form factors, thereby simplifying migration to LTE Cat 1bis from legacy 2G or 3G technologies, which are sunsetting on many MNO networks around the world.

| | LENA-R8001 | LENA-R8001M10 |
|--|-------------------------------------|---------------|
| Grade | | |
| Automotive | | |
| Professional | | |
| Standard | • | • |
| Regions | | |
| | | Global |
| Access Technology | | |
| LTE FDD bands | 1, 2, 3, 4, 5, 7, 8, 12, 20, 28, 66 | |
| LTE TDD bands | 38, 40, 41 | |
| 2G bands | Q | |
| Data rate | | Cat 1 |
| Positioning | | |
| External GNSS control via modem | • | |
| Integrated GNSS receiver | | • |
| Dedicated GNSS antenna interface | | • |
| Compatible with u-blox Services | | |
| MQTT Anywhere | • | • |
| AssistNow™ | • | • |
| CellLocate® | • | • |
| Interfaces | | |
| UART | 1 | 2 |
| USB | 1 | 1 |
| I2C | 1 | |
| GPIO | 6 | 6 |
| Features | | |
| PSM | • | • |
| eDRX | • | • |
| MQTT / MQTT-SN | • | • |
| TCP/IP, UDP/IP, HTTP/FTP | • | • |
| DTLS/TLS | • | • |
| Secure boot / update | • | • |
| Dual stack IPv4/IPv6 | • | • |
| FW update via serial (FOAT) | • | • |
| FOTA | • | • |
| Jamming detection | • | • |
| Antenna detection | • | • |
| CSFB / VoLTE | • | • |

Cat 1 = 10 Mbit/s DL, 5 Mbit/s UL

Q = Quad-band

LENA-R8 series



Features

| | |
|----------|---|
| LTE | LTE Cat 1bis (10 Mbit/s DL, 5 Mbit/s UL) 3GPP Release 13 |
| GSM (2G) | GPRS multi-slot class 12 Bands (in MHz): 850/900/1800/1900 |
| SMS | MT/MO PDU / Text mode SMS over IMS and via SMS-C |
| Voice | VoLTE or CSFB |

Compatible u-blox services

| | |
|---------------|-------------------------|
| Communication | MQTT Anywhere |
| Location | AssistNow CellLocate |

Software features

| | |
|------------------|--|
| Protocols | Dual stack IPv4 and IPv6 Embedded TCP/IP, UDP/IP, FTP, HTTP Embedded MQTT and MQTT-SN eSIM and Bearer Independent Protocol |
| Positioning | Integrated u-blox M10 chip with concurrent GNSS ¹ (GPS, GLONASS, BeiDou, Galileo) Dedicated GNSS antenna interface ¹ External GNSS control via modem ² |
| Firmware upgrade | Via UART (FOAT) and USB (FOAT) FOTA (Firmware upgrade Over the Air) |

Electrical data

| | |
|--------------|--|
| Power supply | Separate supply inputs for modem and GNSS systems: 3.8 V nominal for the modem 1.8 V nominal for the GNSS |
|--------------|--|

1 = On LENA-R8001M10

2 = On LENA-R8001

Package

| |
|----------------------|
| 27.0 x 30.0 x 2.7 mm |
|----------------------|

Environmental data, quality & reliability

| | |
|---|------------------|
| Operating temperature | -40 °C to +85 °C |
| RoHS compliant (lead-free) | |
| Qualified as u-blox standard grade products | |

Certifications and approvals

| | |
|------------------------------|--------------------------------|
| LENA-R8001 and LENA-R8001M10 | GCF, FCC, ISED, RED, UKCA, RCM |
|------------------------------|--------------------------------|

Interfaces

| | |
|--------|--|
| Serial | 1 UART for the modem 1 UART for GNSS ¹ 1 USB 2.0 (high-speed, 480 Mbit/s) 1 I2C ² |
| GPIO | 6 |
| (U)SIM | Supports 1.8 V and 3.0 V, SIM toolkit |

Support products

| | |
|--------------|--|
| EVK-R8001 | Evaluation kits for LENA-R8 series |
| EVK-R8001M10 | RIL software available for Android 12.0 and previous versions |

Product variants

| | |
|---------------|--|
| LENA-R8001 | LTE Cat 1bis module with global coverage |
| LENA-R8001M10 | LTE Cat 1bis module with global coverage and integrated u-blox M10 GNSS |

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](#).



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-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management