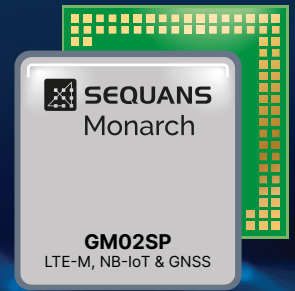


LTE-M & NB-IoT

Monarch 2 GM02S/P Modules

Dual-mode power-optimized LTE-M & NB-IoT modules for IoT applications



The Monarch® 2 GM02S module family is based on Sequans' second-generation Monarch LTE-M & NB-IoT platform. Beyond its support of an industry-leading power-optimized LTE stack, the modules bring a versatile toolbox of integrated features covering all IoT application needs, including one variant, GM02SP, with integrated GNSS. Monarch 2 GM02S modules also deliver remarkably high levels of security and reliability.

Monarch 2 LTE-M & NB-IoT Platform

At the heart of Monarch 2 GM02S is a flexible platform offering a variety of services. These include an open SDK environment allowing customer application development, a full IP stack delivering a high level of security, and compliance with the latest eSIM standards, with flexible support for customer-managed firmware updates (FOTA). A variant of Monarch 2 GM02S, the GM02SP, further extends this platform with an integrated GNSS capability, notably optimized in power consumption.

Next-Gen: Monarch 3 Platform for 5G eRedCap

Currently in development, Monarch 3 builds on Sequans' deep expertise to deliver the most advanced cellular chip for LPWA applications. This next-generation will be footprint compatible with the current Monarch 2 and support 5G NR eRedCap and LTE-M into a single, ultra-efficient chip—setting a new benchmark for cost-optimized, low-power, size and robust connectivity.

Module Variant	Regions	LTE Bands Supported	GNSS
GM02S	Worldwide	1, 2, 3, 4, 5, 8 (incl. US band 8), 12, 13, 17, 18, 19, 20, 25, 26, 28, 66, 85	No
GM02SP	Worldwide	1, 2, 3, 4, 5, 8 (incl. US band 8), 12, 13, 17, 18, 19, 20, 25, 26, 28, 66, 85	Yes

Highlights

- + Dual-mode single-image LTE-M & NB-IoT with instant switch
- + Ultra-low power
- + Worldwide bands for global coverage on public and private networks
- + Location services with integrated GNSS*
- + Edge processing with an open SDK
- + Secure by design: native MQTT v5.0, TLS 1.3, and DTLS 1.2
- + Industrial grade: trusted by the most demanding LPWA applications

* available on GM02SP

Applications



Asset Tracking



Telematics



Utility Meters



Industrial Sensors



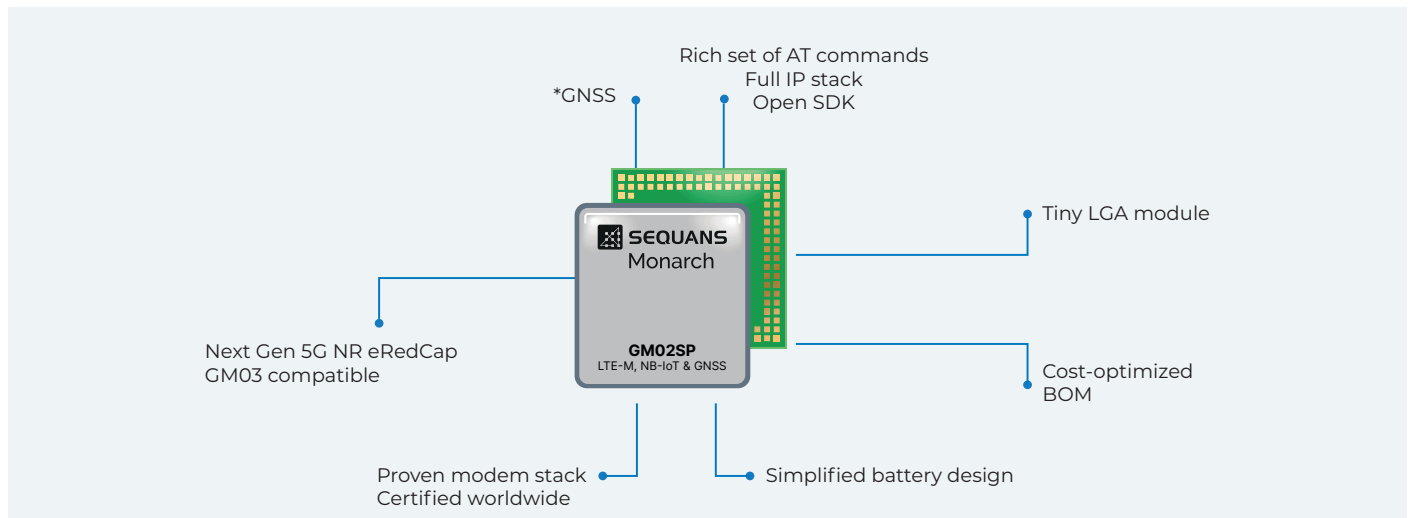
Health & Fitness Bands



Smart Home

Monarch 2 GM02S & GM02SP Modules

Dual-mode power-optimized LTE-M & NB-IoT modules for IoT applications



LTE Modem

- + Industry lowest deep sleep mode at 1µA (used in PSM and eDRX)
- + 16.3 x 17 x 2.2 (typ.) mm LGA module
- + 3GPP Release 14
- + Max transmit power up to +23 dBm
- + Single power supply: 2.2-5.5V

Throughput

- + LTE Cat M1: up to 1.1 Mbps (UL) / 0.3 Mbps (DL)
- + LTE Cat NB1/NB2: up to 105 kbps (UL) / 80 kbps (DL)

Interfaces

- + UART x 3
- + USIM x 2 (ISO7816)
- + JTAG, I2C, SPI
- + GPIO including multiple module wake inputs and high precision LTE-synchronized GPIOs
- + 50 Ohm cellular antenna interface
- + Dedicated GNSS RF input*

Software

- + Field proven LTE-M & NB-IoT LTE software stack
- + Rich set of AT commands compatible with other Sequans platforms
- + IP and non-IP data delivery
- + TCP/IP stack enabling HTTP(S), MQTT(S) v5.0, CoAP to connect to cloud platforms
- + TLS 1.3, DTLS 1.2
- + AT Command driven GNSS navigation modes*
- + eSIM-ready with GSMA SGP.22 & SGP.32 ecosystem support

Environmental

- + Operating temperature: -30° C to +85° C
- + Extended temperature: -40° C to +85° C
- + Storage: JEDEC MSL 3

GNSS*

- + L1 band
- + Very low-power consumption per fix (with configurable performance vs. power levels)

Certification

- + GCF, PTCRB and major MNOs
- + FCC, ISSED, RED, UKCA, JATE/TELEC, ACMA, NCC

GM02S & GM02SP EVKs

Connect to cellular networks in minutes.

Also includes:

- + Global Soracom SIM card with promotional connectivity included
- + One MiniUSB cable, embedded antenna with antenna tuner
- + GNSS antenna*



GM02SP EVK

* available on GM02SP

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