

# TRASNA

## Sara-R52

Compact LTE-M/NB-IoT module  
with GPS



# Upgrade your IoT future with Trasna

Trasna supports over 250 leading brands across 80+ countries with end-to-end IoT connectivity hardware and software solutions for SIM, eSIM, iSIM/SoC, cellular IoT modules, and device management. We deliver the full mobile IoT value chain from chip to cloud with unmatched control, efficiency and innovation. By partnering with us, clients gain maximum value and a strong competitive edge.



## Complete control

Enjoy end-to-end security. Everything starts and finishes with us, so you always have complete visibility and accountability at every stage



## Complete efficiency

Our end-to-end solutions are designed to deliver optimal efficiency at every stage, reducing costs, time, and resources whilst ensuring fast, easy implementation



## Complete innovation

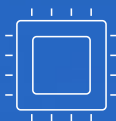
We deliver cutting-edge, scalable technology, future-proofing your business with solutions that drive rapid growth and capitalise on emerging opportunities

## u-blox cellular IoT is now Trasna

In March 2025, Trasna acquired u-blox's cellular IoT modules enabling it to strengthen its IoT connectivity chip-to-cloud offering in the OEM sector. This moved included u-blox's cellular module technology IP, product portfolio, and engineering team. This strengthened Trasna's position as a comprehensive cellular IoT solutions provider, offering end-to-end capabilities spanning semiconductor chip design, SIM and eSIM manufacturing, and cloud-based remote SIM and device management services.



Chip design



(e)SIM



Device mgmt



Cellular IoT modules

# Trasna in numbers



Top  
**02**

**in cellular  
modules**

Excl. China



**20**<sub>bn</sub>

**secure  
connections**

without breach



**250<sup>+</sup>**

**clients**

in 80 countries



**25<sup>+</sup>**

**years'**

in cellular IoT

# Sara-R52

Sara-R52 is a second-generation LTE-M / NB-IoT module series offering power-efficient connectivity, flexible positioning, and embedded application support. Built with full hardware and software ownership down to the chipset level, it ensures long-term availability and reliability. The series supports LTE Cat M1 and NB2 with 3GPP Rel. 14/15 features, offers SpotNow for low-power location, and is compatible with MQTT Anywhere, MQTT Flex, AWS IoT Core, and Microsoft Azure.



Standard



Professional



Automotive

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Same great cellular products and  
team, now powered by Trasna

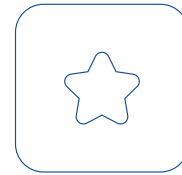


16 × 26 × 2.2 mm

# Benefits

## Application-ready architecture

Run customer applications directly within the R52 chipset, reducing hardware complexity and cost



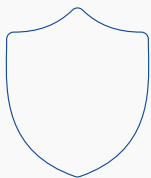
## Efficient positioning

Enables low-power, cost-effective location tracking with SpotNow, ideal for occasional or power-sensitive tracking



## Low power, long life

Supports 3GPP Rel. 14/15 features such as PSM, eDRX, and power-optimised connectivity to maximise battery life



## Secure by design

Delivers secure boot, secure firmware updates, and secure production implementations for robust device protection

## Built-in IoT cloud services

Out-of-the-box compatibility with MQTT Anywhere and MQTT Flex reduces airtime, overhead, and energy consumption



# Highlights



## Low-power LTE-M / NB-IoT connectivity

Supports LTE Cat M1 and NB2 with extended coverage, low latency, and optimised mobility for global IoT deployments



## Onboard application processing

Integrated uCPU allows users to run applications natively on the chipset, eliminating the need for an external MCU



## Advanced positioning flexibility

Offers SpotNow for efficient location tracking without GNSS



## Compact form factor

Small 2.2 × 26 × 16 mm design suited for space-constrained applications across industrial and mobile use cases



## Secure and updatable

Includes secure boot, firmware-over-the-air (FOTA) support, and TLS/DTLS encryption for over-the-air reliability



## MQTT-ready communication

Fully supports MQTT Anywhere and MQTT Flex for lightweight, efficient data delivery over low-power networks



## Cloud integration

Qualified for AWS IoT Core and Microsoft Azure, enabling easy onboarding to major cloud platforms



## Long-term support

Built on a fully owned chipset and software stack, providing guaranteed availability and stability across product lifecycles

## Use cases

- Continuous and cyclic asset tracking
- Smart logistics and supply chain monitoring
- Wearables and portable medical devices
- Telematics and fleet tracking
- Smart metering and environmental sensors
- Industrial automation and remote monitoring



# Product features

|                            |                                      | Sara-R520                                                    | Sara-R520M10                                                 |
|----------------------------|--------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Grade                      | Automotive                           |                                                              |                                                              |
|                            | Professional                         | •                                                            | •                                                            |
|                            | Standard                             |                                                              |                                                              |
| Regions                    |                                      | Global                                                       | Global                                                       |
| Access technology          | LTE bands                            | 1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26, 28, 66, 71, 85 | 1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26, 28, 66, 71, 85 |
|                            | Data rate                            | M1/NB2                                                       | M1/NB2                                                       |
|                            | LTE Power class                      | 23 dBm                                                       | 23 dBm                                                       |
| Compatible Trasna services | AssistNow™                           | •                                                            | •                                                            |
|                            | CellLocate®                          | •                                                            | •                                                            |
| Positioning                | Integrated GNSS receiver             |                                                              | •                                                            |
|                            | Integrated Trasna SpotNow receiver   | •                                                            |                                                              |
|                            | Dedicated GNSS antenna interface     | •                                                            | •                                                            |
|                            | External GNSS control                | •                                                            |                                                              |
| Interfaces                 | UART                                 | 2                                                            | 2                                                            |
|                            | USB (for diagnostics)                | 1                                                            | 1                                                            |
|                            | DDC (I2C)                            | 1                                                            | 1                                                            |
|                            | USIM                                 | 1                                                            | 1                                                            |
|                            | ADC                                  | 1                                                            | 1                                                            |
|                            | GPIO                                 | 6                                                            | 6                                                            |
| Features                   | Secure boot, updates, and production | •                                                            | •                                                            |
|                            | Trasna Smart Connection Manager      | •                                                            | •                                                            |
|                            | Antenna dynamic tuning               | •                                                            | •                                                            |
|                            | Ultra low PSM                        | •                                                            | •                                                            |
|                            | HTTP, FTP                            | •                                                            | •                                                            |
|                            | TCP/UDP                              | •                                                            | •                                                            |
|                            | TLS/DTLS                             | •                                                            | •                                                            |
|                            | MQTT, MQTT-SN                        | •                                                            | •                                                            |
|                            | CoAP and Lwm2m                       | •                                                            | •                                                            |
|                            | FW update via serial (FOAT)          | •                                                            | •                                                            |
|                            | Last gasp                            | •                                                            | •                                                            |
|                            | Jamming detection                    | •                                                            | •                                                            |
|                            | Antenna and SIM detection            | •                                                            | •                                                            |
|                            | CellTime                             | •                                                            | •                                                            |

M1 = LTE Cat M1 (588 kb/s DL, 1200 kb/s UL)      NB2 = Cat NB2 (125 kb/s DL, 140 kb/s UL)

|                                              |                                                      |                                                                                                                                                                                                                                                      |
|----------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Features                                     | LTE                                                  | 3GPP Release 13, 14 (partial support),<br>15 (partial support) for LTE Cat M1 and<br>LTE Cat NB2<br>Cat M1 Half-duplex, 588 kb/s DL, 1200 kb/s UL<br>Cat NB2 Half-duplex, 125 kb/s DL, 140 kb/s UL                                                   |
|                                              | SMS                                                  | MT/MO PDU / text mode<br>SMS over SG/NAS                                                                                                                                                                                                             |
| Software features                            | Protocols                                            | Dual stack IPv4 and IPv6<br>PPP over IPv4 and IPv6<br>Embedded TCP/IP, UDP/IP, FTP, HTTP, DNS<br>Embedded MQTT and MQTT-SN<br>Embedded CoAP and LwM2M<br>Embedded TLS/DTLS<br>SIM provisioning (BIP)                                                 |
|                                              | Positioning                                          | Dedicated GNSS antenna interface<br>Integrated u-blox M10 chip with concurrent<br>GNSS <sup>1</sup> (GPS, BeiDou, Galileo)<br>Integrated u-blox SpotNow A-GPS receiver <sup>2</sup><br>Direct access to external u-blox GNSS via module <sup>2</sup> |
|                                              | Functionalities                                      | Antenna dynamic tuning<br>CellTime for robust and accurate timing reference<br>Last gasp<br>Jamming detection<br>Antenna and SIM detection                                                                                                           |
|                                              | Firmware upgrade                                     | Via FOAT and FOTA (Firmware upgrade Over The Air)                                                                                                                                                                                                    |
|                                              | 1 = On SARA-R520M10      2 = On SARA-R520            |                                                                                                                                                                                                                                                      |
|                                              |                                                      |                                                                                                                                                                                                                                                      |
| Compatible Trasna services                   | Location                                             | AssistNow & CellLocate                                                                                                                                                                                                                               |
| Electrical data                              | Power supply                                         | 3.8 V nominal, range 3.0 V to 4.5 V                                                                                                                                                                                                                  |
|                                              | PSM current consumption                              | 0.5 µA                                                                                                                                                                                                                                               |
|                                              | eDRX current consumption                             | 200 µA                                                                                                                                                                                                                                               |
|                                              | LTE Cat M1<br>Connected mode<br>current consumption  | 195 mA (at 23 dBm)                                                                                                                                                                                                                                   |
|                                              | LTE Cat NB2<br>Connected mode<br>current consumption | 135 mA (at 23 dBm)                                                                                                                                                                                                                                   |
| Interfaces                                   | Serial                                               | 8-wire UART, configurable as 2x 4-wire UART<br>with ring indication<br>DDC (I2C)<br>USB for diagnostics                                                                                                                                              |
|                                              | GPIO                                                 | Up to 6 GPIOs, configurable                                                                                                                                                                                                                          |
|                                              | (U)SIM                                               | Supports 1.8 V and 3.0 V                                                                                                                                                                                                                             |
| Package                                      | 96 pin LGA                                           | 16.0 x 26.0 x 2.2 mm, < 3 g                                                                                                                                                                                                                          |
| Environmental data,<br>quality & reliability | Operating temperature                                | −40 °C to +85 °C                                                                                                                                                                                                                                     |
|                                              | RoHS compliant                                       | Lead-free                                                                                                                                                                                                                                            |
|                                              | Trasna qualification policy                          | Based on AEC-Q104 standard                                                                                                                                                                                                                           |
|                                              | Manufactured                                         | ISO/TS 16949 certified production sites                                                                                                                                                                                                              |
| Certifications and approvals                 | Sara-R52 series <sup>3</sup>                         | FCC, ISED, GCF, PTCRB, AT&T with FirstNet, Verizon, T-Mobile,<br>Telus, RED, Orange, Deutsche Telekom, Giteki, RCM, Telstra, NCC                                                                                                                     |
|                                              | Sara-R52 series                                      | AWS IoT Core qualified                                                                                                                                                                                                                               |
|                                              | 3 = Planned certifications                           |                                                                                                                                                                                                                                                      |
| Support products                             | EVK-SARA-R520                                        | Evaluation kit for Sara-R520                                                                                                                                                                                                                         |
|                                              | EVK-SARA-R520M10                                     | Evaluation kit for Sara-R520M10                                                                                                                                                                                                                      |
| Product variants                             | Sara-R520                                            | LTE-M and NB-IoT module for global use                                                                                                                                                                                                               |
|                                              | Sara-R520M10                                         | LTE-M and NB-IoT module with integrated<br>Trasna M10 GNSS receiver for global use                                                                                                                                                                   |

# Take the next step

Grow your business with Trasna Sara-R52.  
Contact your account manager to learn more.

[hello@trasna.io](mailto:hello@trasna.io) | [www.trasna.io](http://www.trasna.io)

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