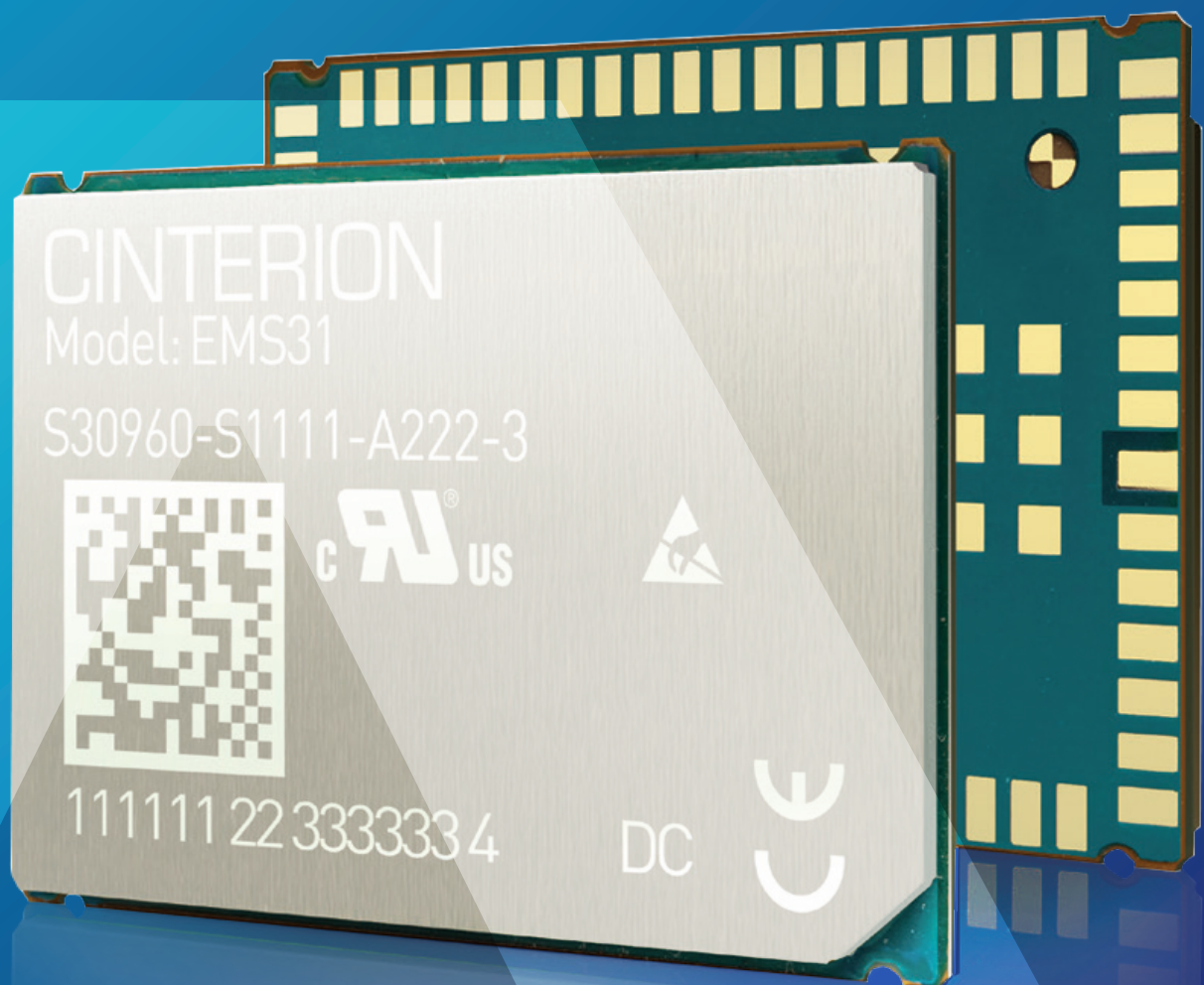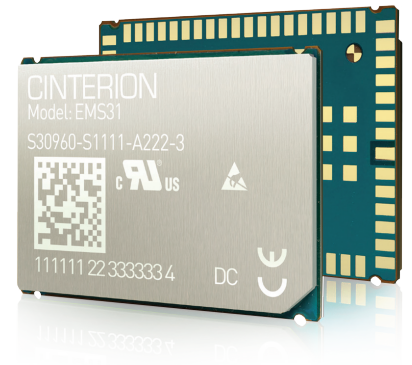THALES

MTC LTE

Cinterion® EMS31 Wireless Module

LTE Cat. M1 for Highly Efficient 4G Connectivity

Cinterion® EMS31 Wireless Module

Delivering Highly Efficient LTE Cat. M1 Connectivity

EMS31

- **LTE Cat.M Multi Band variants**
- **Multi Design Capability (LGA)**
- **Bearer Independent Protocol**
- **Embedded TCP/IP Stack**
- **Incremental Firmware Update**
- **embedded SIM**
- **Highly Compact Size**
- **Advanced Temperature Management**

Thales's Cinterion® EMS31 wireless module opens new possibilities for Internet of Things (IoT) solutions. Based on new LTE low-power wide area (LPWA) standards, it is the first module truly designed for industrial IoT use cases. It brings new technology for optimal radio coverage (up to 15 db enhancement), enhanced power management (up to 10 year battery life), and a new radio concept that allows one global hardware variant in the future, while delivering market proven Industrial Grade M2M features expected from Thales.

EMS31 integrates the latest CAT M1 technology features to transform LTE for M2M markets. Optimized connectivity is achieved through an Enhanced Coverage feature, which uses a special algorithm to allow for deep penetration into difficult coverage areas for example basements and warehouses. In addition, advanced power saving features help battery operated devices achieve up to 10 year lifetime. Power management is further increased through the module's clever wake-up/sleep mechanism. EMS31 features a new single antenna radio concept that reduces device complexity and saves costs.

The EMS31 also comes with a suite of Thales special features which have evolved through our 20 years of experience to help customers in all stages and aspects of implementation: from production, to network troubleshooting, to security and connectivity. EMS31 is ideal for a variety of applications including smart meters, industrial trackers, healthcare, and industrial sensors, where safe, reliable connectivity and longevity are more important than high data rate.

The Cinterion EMS31 wireless module is part of Thales's proven Industrial family, which offers reliability, M2M- optmized features and extreme efficiency for a range of cellular standards from 2G to MTC standards such as CAT1 and NB-IoT. Benefits include flexibility, backward and forward compatibility to support network evolution, and product longevity to maximize your technology investment. EMS31 is compatible with Thales's broad portfolio of trusted solutions and services that Connect, Secure and Monetize the entire industrial IoT ecosystem.

LTE Cat. M1: Highly Efficient 4G for IoT

27.6 mm

18.8 mm

CINTERION
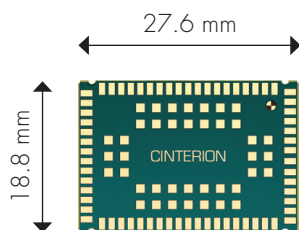
Advanced Power Saving

In addition to standard power saving capabilities, a clever wake-up & sleep mechanism, EMS31 provides suspend and resume in less than a second. This reduced boot time saves significant power for many IoT devices.

Optional embedded MIM or eUICC

Offering an embedded MIM - a trusted Thales core competency - the module provides an integrated MIM with either a fixed operator subscription, or with remote subscription management and On Demand Connectivity (ODC) capabilities. Benefits of eMIMs and ODC include reduced Total Cost of Ownership (TCO) due to easy integration and simplified manufacturing and delivery logistics for high volume customers.

Flexible RF

A unique RF design allows flexible regional band configuration and operator specific software. While initial designs support 2 bands, the evolving flexible RF design will support global multiband variants up to 12 bands. This enables a single hardware design for global deployments along with simplified asset creation, easy logistics chain and improved management.

Thales M2M Support includes:

❙ Personal design-in consulting for hardware and software

❙ Extensive RF test capabilities

❙ GCF/PTCRB conform pretests to validate approval readiness

❙ Regular training workshops

Local engineers, a competent helpdesk, a dedicated team of R&D specialists and an advanced development center are the hallmarks of our leading support offer.

Cinterion® EMS31 Features

General Features

❙ LTE (FDD) 3GPP Release 13:
EMS31-US: LTE (2,4,12)
EMS31-V: LTE (4,13)
EMS31-X: LTE (2,4,12,13)
EMS31-J: LTE (1,8,18,19,26)
EMS31-W: LTE Multiband

❙ Compatible with Cinterion® Industrial module footprint

❙ Control via AT commands
(3GPP TS 27.007 and 27.005)

❙ Cinterion® AT commands

❙ Supply voltage range 3.3 .. 4.5 V

❙ Dimensions: 27.6 x 18.8 x 2.1 mm

❙ Operating temperature Range

❙ −40°C to +85°C

❙ IP services transparent and nontransparent TCP/UDP client & server, HTTP/FTP/SMP client, TLS support for TCP/UDP/ HTTP/FTP/SMTP clients

❙ Weight: ca. 2.7 g

❙ Full Thales M2M AT command set and services

❙ Control via AT commands (Hayes, 3GPP TS 27.007 and 27.005)

❙ SIM Application Toolkit, Rel. 99

Specifications

❙ LTE Cat. M1, single antenna, half duplex

❙ DL/UL max: 300 kbps / 375 kbps

❙ SMS via NAS

❙ SMS text and PDU mode

❙ Verizon APN class handling (−V and −X)

Special Features

❙ Embedded MIM prepared

❙ Firmware updatable via application and Over the Air (OTA)

❙ LWM2M support

❙ eDRX

❙ Power Saving Mode (PSM)

Interfaces (LGA Pads)

❙ Pads for primary LTE Antenna

❙ High speed 8-line serial interface

❙ 2 UICC and U/SIM card interfaces 1.8V / 3V (one for embedded SIM)

❙ I2C, ADC interface

❙ 2x Serial interface:
High-Speed Serial Interface (9 lines, 920 kbps)
Secondary High-Speed Serial Interface (4-wires, 920 kbp)

Drivers

▌ Driver for Windows® 7 / Windows® 8 / Windows 10

Approvals

▌ FCC, GCF, IC, UL, PTCRB

▌ Mobile Operator Approvals: Verizon, AT&T certification

▌ California RoHS

▌ Further MNO approvals t.b.d.

Thales in IoT:
Driving digital transformation with the power of the IoT

Thales delivers innovative IoT technology that simplifies and speeds enterprise digital transformation. For more than 20 years, our customers – in a wide range of industries - trust our IoT solutions to seamlessly connect and secure their IoT devices, maximise field insights, and accelerate their global business success.

Thales solutions:

▌ **Connect** assets to wireless networks and cloud platforms

▌ **Manage** the long lifecycle of IoT solutions

▌ **Secure** devices and their data

▌ **Analyse** real-time data transforming it into business intelligence that improves decision making

Our 360° approach provides the essential building blocks needed to simplify design, streamline development and accelerate time-to-market.

For more information, please visit **www.thalesgroup.com/IoT** or follow **@ThalesIoT on Twitter**

thalesgroup.com/iot [in] [twitter] [f] [youtube]