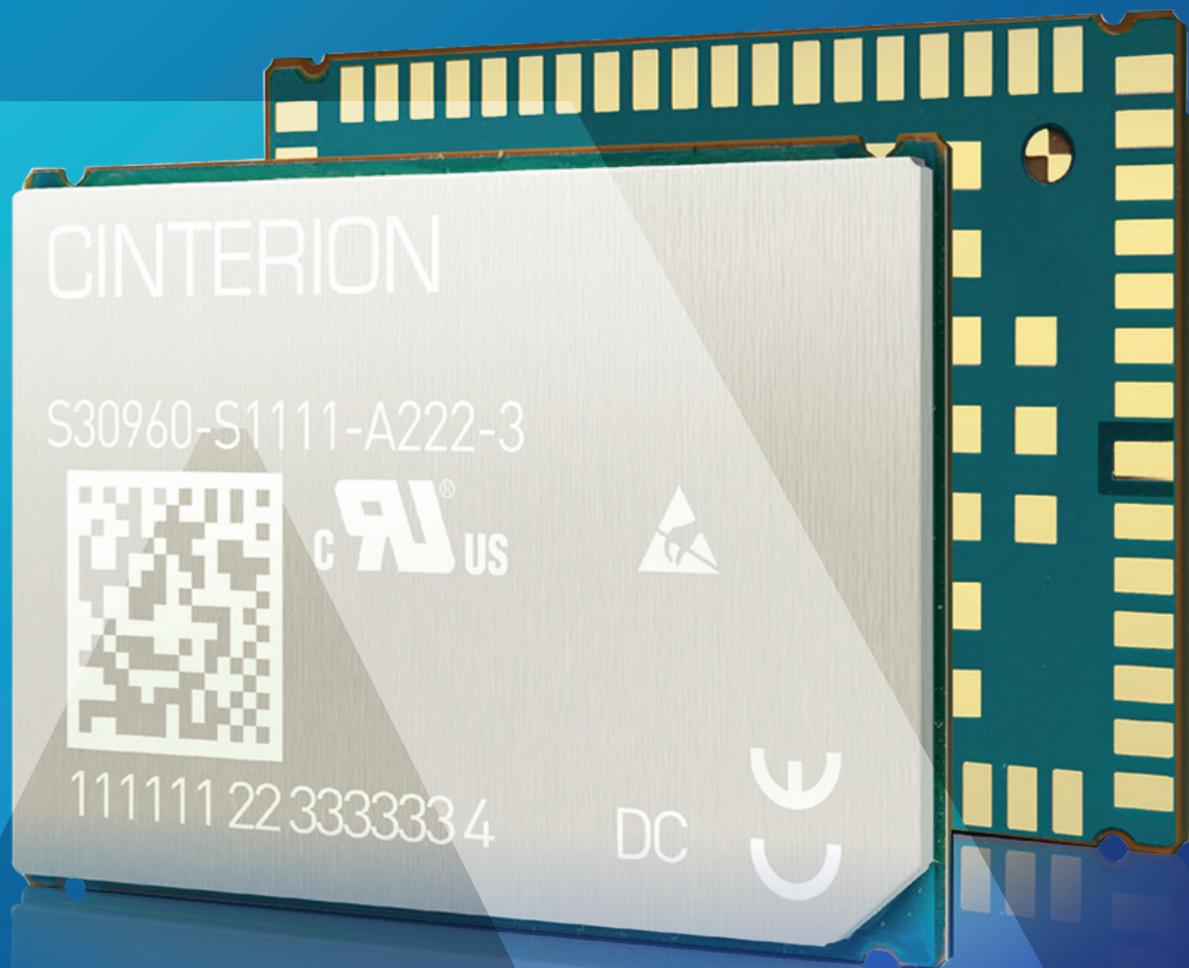**THALES**

LTE

Cat.1 M2M Module

Highly Efficient 4G LTE Connectivity Optimized for the IoT

Cinterion® ELS31
Cat. 1 LTE M2M Module:

Delivering power-enhanced performance
and M2M-optimized speeds

ELS31

4G Dual Band/Tri Band LTE Cat. 1

USB 2.0 High Speed compatible

Embedded TCP/IP Stack

VoLTE Support

Multi Design Capability (LGA)

Highly Compact Size

Incremental Firmware Update

BIP Bearer Independent Protocol

The first of its kind Cinterion® ELS31 LTE Cat. 1 wireless module is revolutionizing highly efficient 4G LTE connectivity for Machine-to-Machine (M2M) and industrial Internet of Things (IoT) applications. The device features poweroptimized performance and M2M-optimized speeds of 10Mbit/s download and 5Mbit/s uplink. It delivers overall cost efficiencies for the vast number of IoT applications that are not dependent on high speed connectivity but still require the longevity and reliability of LTE networks as 2G and 3G phase out in decades ahead. It is ideal for a wide variety of applications including metering, tracking and tracing, fleet management and mHealth.
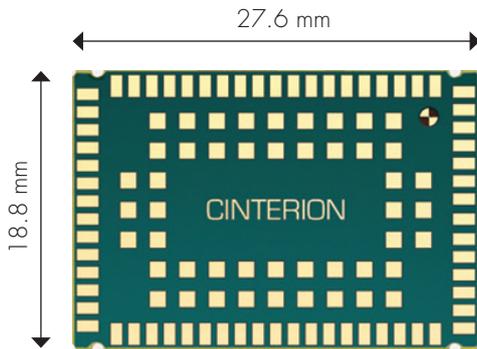
Sharing the same footprint as existing Cinterion industrial portfolio products, the ELS31 modules enable easy migration of 2G and 3G devices to LTE. It also supports multi-designs for different network standards in most dynamic LTE markets such as US and Japan. All Cinterion M2M Modules come with Full Type Approval (FTA) and local network operator certifications to ensure easy integration and a fast time to market for innovative solutions.

The small ELS31 platform comes in Thales M2M's unique LGA (Land Grid Array) package perfectly suited to the manufacturing needs of small, high-volume M2M devices with a focus on reliable and efficient processes. The module is designed for optimized power consumption and includes support for common industrial interfaces such as USB and UART.

ELS31 is a single-mode module specifically designed for LTEnetworks.

Network standards are expected to continue to evolve encompassing increasingly efficient LTE categories (e.g. Cat-M1), or voice over LTE (VoLTE). Future Cinterion modules will support easy forward/ backward migration and compatibility by sharing the same form-factor.

Perfect M2M at Minimal Footprint

27.6 mm

18.8 mm

CINTERION

LTE optimized M2M and IoT

Thales LTE Cat. 1 modules are less complex in comparison to higher LTE categories. Tailored specifically for the needs of M2M applications, they offer an optimized feature set and power-enhanced performance. As 2G/3G interworking does not need to be considered for ELS31, reduced approval costs can be achieved for M2M solutions. Mobile network operator or region specific variants are available.

Future proof and support for multi-designs

The unique and stable Cinterion module form factor of ELS31 supports an easy migration between existing and future standards. Currently, this form factor is supported in Thales 2G/3G modules. A potential migration to future standards is foreseen, LTE lower categories (e.g. Cat.M1) will be supported in compatible modules.

Thales M2M Support includes:

❙ Personal design-in consulting for hardware and software

❙ Extensive RF test capabilities

❙ GCF/PTCRB conformance pretests to validate approval readiness

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

Cinterion® ELS31 Features

General Features

❙ LTE (FDD) 3GPP Rel. 9+

❙ Regional Variants:
ELS31-V/-VA (Verizon, USA): LTE Cat-1
Bands 4,13 (1700/2100 AWS, 700 MHz)
ELS31-J/-JK (NTT DoCoMo and KDDI): LTE Cat-1)
Bands 1,18,19 (2100, 800, 850 MHz)

❙ SIM Application Toolkit, Rel. 99

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

❙ Full Thales M2M AT command set and services

❙ Supply voltage range 3.3 - 4.5 V, optimized for minimal power consumption

❙ Dimension: 27.6 x 18.8 x 2.1 mm

❙ Operating temperature Range -40°C to +85°C

❙ Weight: ca. 2.7 g

Specifications

❙ LTE Cat. 1 single layer DL-MIMO

❙ DL/UL max: 10.3Mbps / 5.2 Mbps

❙ Supplementary services & USSD support

❙ High quality voice support for handset, headset and hands-free operation (ELS31-VA only)

❙ IMS support, SMS via IMS (ELS31-V and ELS31-VA only)

❙ SMS text and PDU mode, 3GPP and 3GPP2 formatting

❙ Verizon APN class handling (ELS31-V and ELS31-VA only)

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

Special Features

❙ Embedded MIM (MFF2) prepared

❙ Firmware update via UART and USB

❙ FOTA (Incremental Firmware Update Over The Air)

❙ Multiplexer according 3GPP TS 27.010

Interfaces (SMT-LGA, 114 Pads)

❙ Pads for primary LTE Antenna, LTE DL MIMO-Antenna

❙ Digital Audio Interface (PCM and I2S)*

❙ USB 2.0 interface up to 480 Mbps
(CDC-ACM, CDC-ECM)

❙ High-speed UART interface

❙ DUN/PPP

❙ UICC and U/SIM card interfaces 1.8V/3V

❙ Up to 20 GPIO pins

❙ I2C, SPI, ADC interface

*) ELS31-VA only

Drivers

- Driver for Windows Vista® / Windows® 7 / Windows® 8 / Windows 10
- Driver for Android RIL 6.x

Approvals

- FCC, GCF, IC, UL,
- JATE,* TELEC*
- Japan Environmental Directives compliant*
- Mobile Operator Approvals:
  - Verizon (-V/-VA)
  - NTT DoCoMo (-J)
  - KDDI (-JK)
- California RoHS

*) ELS31-J/-JK

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**

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