

# Cinterion® PLPS9 IoT Wireless Module

LTE Cat 16 Advanced Pro Connectivity With 3G and 2G Fallback



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## PLPS9



**LTE Advanced Pro Cat 16**



**Multi Band 3G and 2G Fallback**



**USB 3.0 High Speed Compatible**



**Embedded TCP/IP Stack**



**GPS / A-GPS / GLONASS**



**FOTA**



**HoRxD with Four Antennas**



**Multi Design Capability (LGA)**



**Thales IoT Security**



**Voice Over LTE plus CSFB**

The Thales PLPS9 IoT wireless module is driving evolution to 5G for data hungry industrial solutions that require ultra-high speed global connectivity and supreme reliability. Built on Thales's proven automotive platform with Cat. 16 3GPP R13 LTE Advanced Pro technology, it delivers blazing speeds of up to 1 Gbps. Advanced sensitivity provides reliability in the most demanding network conditions including at the cell edge and indoors or underground. With built-in Thales security and packed with LTE Advanced Pro features, it's an ideal connectivity solution for in-vehicle mobile applications, industrial routers and gateways, mobile computing solutions, video surveillance, digital signage and augmented reality.

### Key Features

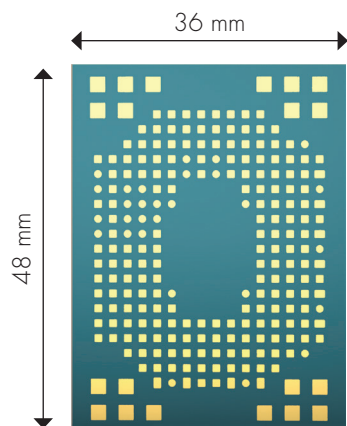
The PLPS9 provides global LTE Cat 16 coverage with 3G/2G fallback from just two product variants: PLPS9-X for the U.S., and PLPS9-W for EMEA/APAC. Reliability was proven via extensive large scale drive tests. Carrier aggregation and MIMO 4x4 antenna interfaces deliver peak user data rates and optimized use of spectrum for improved connectivity performance. The module's innovative RF concept enhances extreme performance, sensitivity and connection stability.

Integrated GNSS enables quick and accurate positioning capabilities. It also provides voice support for LTE via VoLTE or CSFB (Circuit Switched Fallback). Thales's proprietary LGA footprint optimizes heat dissipation to prevent warping while allowing the flexibility to select the most beneficial soldering paste for each individual application. The module enables seamless migration from 2G/3G/LTE and LTE-A.

### Industrial Plus Family Benefits

The PLPS9 wireless module is part of the Cinterion Industrial Plus family, which leverages the latest wireless standards to deliver IoT optimized data speeds, performance and Multi Band capabilities for seamless global coverage. All modules in the family share a common footprint enabling a seamless migration path to protect your IoT investment and they are available in local and global variants including 2G, 3G, CDMA, LTE and LTE Advanced. They come with full type approval (FTA) and are certified by the largest global network operators. All Cinterion modules are compatible with Thales's comprehensive suite of solutions, services and platforms that help enterprises Connect, Secure and Monetize IoT technology.

# LTE Advanced for Demanding Industrial IoT



## Carrier Aggregation

Leveraging a major benefit of LTE Advanced Pro technology, PLPS9 supports carrier aggregation allowing Mobile Network Operators to combine two or more carriers into one data channel for enhanced data capacity, improved peak user performance and optimized use of spectrum.

## Enhanced Sensitivity and Reliability

MIMO 4x4 antenna interfaces and a highly integrated RF design improves sensitivity and reliability in demanding network conditions as well as stability in fluctuating conditions providing excellent performance indoors and in noisy urban areas.

## Built In Thales Security

Thales IoT security built into the root of the device defends against evolving cyberattacks. A double system partition architecture provides fail-safe protection during firmware updates with virtually zero downtime. In addition, a secure boot enables safe updates and prevents execution of malicious firmware.

## Cinterion® PLPS9 Features

### General Features

- PLPS9: State of the art Industrial LTE Advanced Pro
- LTE 3GPP Rel. 12, Rel. 13 platform
- 4x4 MIMO (4 antenna interface)
- UMTS/HSPA (FDD) 3GPP Release 8; Rx diversity
- GSM/GPRS/EDGE 3GPP Release 6; DARP/SAIC
- HoRxD (Higher Order Receive Diversity) with up to 4 antennas i.e. 3dB better sensitivity (over 2 antenna solutions)
- Integrated gpsOne 9HT support (GPS, Glonass, Beidou, Galileo)
- SIM Application Toolkit, 3GPP release 99
- Control via AT commands (Hayes, TS 27.007, TS 27.005)
- Supply voltage range 3.3 - 4.2 V, highly optimized for minimal power consumption
- Dimension: 48 x 36 x 3mm
- Operating Temperature Range: -40 °C to +95 °C
- RoHS, RED and REACH compliant, EuP support

### Variants

#### Europe/APAC/Brazil (World):

- GSM: 850, 900, 1800, 1900MHz
- UMTS: B1, B3, B5, B6, B8, B19
- FDD-LTE: B1, B3, B5, B7, B8, B18, B19, B20, B26, B28, B32
- TD-LTE: B34, B38, B39, B40, B41

#### Americas:

- GSM: 850, 900, 1800, 1900MHz
- UMTS: B2, B4, B5
- FDD-LTE: B2, B4, B5, B7, B12, B13, B28, B29, B66

### Specifications

- LTE Cat. 16 DL: max. 1 Gbps, UL: max 150 Mbps, 4x4 MIMO
- HSPA+ DL Cat.24 / UL Cat. 6, Dual Carrier DL: max. 42 Mbps, UL: max. 5.76 Mbps
- EDGE Class 12 data rates DL: max. 237 kbps, UL: max. 237 kbps
- GPRS Class 12 data rates DL: max. 85.6 kbps, UL: max. 85.6 kbps
- VOLTE/CSFB
- SMS text and PDU mode

### Special Features

- Scalable memory size (RAM, Flash)
- AS-DIV (Antenna Switch Tx Diversity) for better performance in mobility scenarios
- Voice Support for LTE via VoLTE or CSFB (Circuit Switched Fallback)
- Global coverage on 2 SKUs
- Secure Boot Feature

### Interfaces (LGA Pads)

- 4 antenna design
- 4 ADC inputs for antenna detection circuitry
- LGA mount
- Ethernet & WiFi (802.11p) & BT via PCIe 2.1 (5Gbps single lane)
- USB 3.0 super speed (5 Gbps)
- 2 UICC (SIM/MIM) interfaces 1.8V / 3V
- 15 programmable GPIOs including wakeup and low current indication
- Serial interfaces (UART, I<sup>2</sup>C, USIM)
- Audio interface (I<sup>2</sup>S, PCM)

## Drivers

- | NDIS/USB driver for Microsoft®, Windows 7™, Windows 8™ and Windows 10™

## Approvals

- | RED, FCC, IC, UL, GCF, PTCRB, REACH
- | California RoHS, China RoHS2, WEEE compliant
- | MNO certifications: AT&T
- | Other local approvals and certifications on request

## 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](http://www.thalesgroup.com/iot) or follow [@ThalesIoT](https://twitter.com/ThalesIoT) on Twitter

