

## EHS5 mini PCIe



Dual-Band  
3G



Dual-Band  
2G



GPRS / EDGE  
Class 12



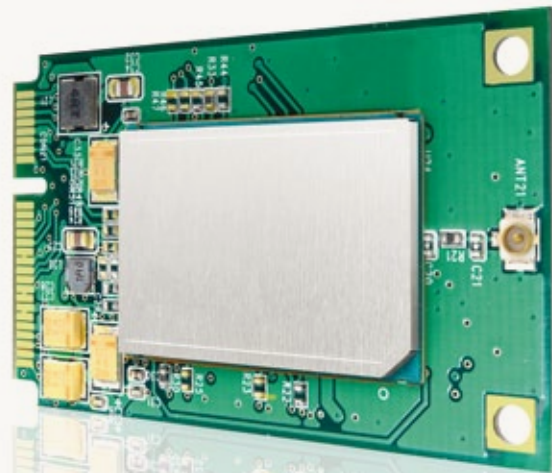
USB 2.0



Universal SIM  
Interface



Advanced  
Temperature  
Management



# 3G

Cinterion® EHS5 miniPCIe Wireless Module

The industrial-grade and cost-optimized 3G wireless solution for cloud connected intelligent systems

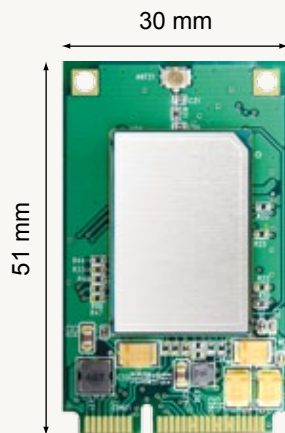
# Cinterion® EHS5 miniPCle

## The Solution for Cloud Connected Intelligent Systems

The Cinterion EHS5 miniPCle is an easy to integrate data modem card designed to add cost efficient 3G wireless connectivity to industrial systems requiring a mid-range bandwidth demand of up to 7.2 Mbps in the downlink and 5.76 Mbps in the uplink. Leveraging the Cinterion EHS5 module and the standard PCI Express® Mini Card form factor (miniPCle), the solution provides double dual-band 3G and 2G support enabling geographically optimized Internet access and cloud-based services for intelligent systems with x86-architecture. It is ideal for intelligent systems that frequently transfer large amounts of data such as smart signs that download new advertising campaigns or any solution that requires operating system updates.

With an extended temperature range from -40 °C up to 85 °C, the Cinterion EHS5 miniPCle is reliable in extreme environments for use outdoors or inside at sites that lack cooling and heating systems. It provides simple plug-in integration via the standardized 52-pin PCIe system connector and works with built-in Windows® and Linux modem drivers easing integration work for intelligent system developers. An optional micro SIM card (3FF) holder allows easy replacement of WiFi miniPCle card to transform existing applications into cellular-based smart solutions capable of operation anyplace with cellular coverage. With its straightforward installation and regionally optimized 3G and 2G connectivity, the EHS5 miniPCle enables cost optimized, broadband cellular connectivity for any PC-based industrial M2M application.

### The Solution for Cloud Connected Intelligent Systems



#### M2M miniPCle Offers Extended Temperature Range and Advanced Temperature Management

Compared to consumer electronic products, industrial and commercial M2M applications demand more durable components, which are designed to work 24/7 under extreme temperature conditions. The Cinterion M2M miniPCle functions reliably in temperatures ranging from -40 °C up to +85 °C for use outdoors in snow and ice, or inside industrial facilities and equipment that lack heating and cooling systems. With an Advanced Temperature Management feature, the EHS5 module will react under extreme thermal conditions and automatically adapt the current radio performance to avoid overheating.

#### Convenient miniPCle System Connector

The miniPCle form factor provides flexible integration of cellular modem functionality for M2M applications based on an x86-processor architecture. With the standardized 52-pin interface, the miniPCle card just needs a USB and SIM interface as well as power supply and control pins for full operation.

#### Soldered Machine Identification Modules (MIM)™ Provide Increased Longevity

Gemalto's next generation MIMs are ruggedized for industrial M2M applications and can be soldered directly on the circuit board, extending the product's life with highest reliability even in harsh environments. The Cinterion EHS5 miniPCle can be customized with a soldered MIM for M2M applications with specific needs and ordered as a product variant upon request.

#### Gemalto 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® EHS5 miniPCle Features

## GENERAL FEATURES

- > Dual-Band UMTS (WCDMA/FDD):  
850/1900 MHz (EHS5-US), 900/2100 MHz (EHS5-E)
- > Dual-Band GSM:  
850/1900 MHz (EHS5-US), 900/1800 MHz (EHS5-E)
- > 3GPP Release 7 Compliant Protocol Stack
- > SIM Application Toolkit , letter class "c"
- > Control via AT commands (Hayes, 3GPP TS 27.007 and 27.005)
- > Supply voltage range 3.0...3.6 V
- > Dimension: 51 × 30 × 4.7 mm (full mini card size)
- > Operating temperature: -40 °C to +85 °C
- > Weight 7.5 g
- > RoHS and EuP (EHS5-E) compliant

## SPECIFICATIONS

- > HSPDA Cat.8 / HSUPA Cat.6 data rates  
DL: max. 7.2 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
- > SMS text and PDU mode, cell broadcast

## SPECIAL FEATURES

- > Advanced Temperature Management
- > Compatible with USB and modem driver of Microsoft® Windows 8™, Windows 7™, Windows Vista™, Windows XP™
- > Compatible with USB and modem driver of Linux kernel, e.g. Wind River Linux
- > Parallel COM ports (6) under Microsoft® Windows 8™, Windows 7™, Windows Vista™, Windows XP™ and Linux

## INTERFACES

- > PCI Express®Mini Card system connector (52 pin)
  - > Supply voltage 3.3 V
  - > USB 2.0 HS interface up to 480 Mbps
  - > UICC/SIM card interface 1.8 V / 3.0 V
  - > Status LED (configurable GPIO)
  - > Reset
- > Antenna connector: U.FL 50 Ω
- > Optional: Micro-SIM holder on backside

## APPROVALS

- > R&TTE, GCF (EHS5-E module full type approved)
- > FCC, PTCRB, IC (EHS5-US module full type approved)
- > CE (EHS5-E), UL (EHS5-US)

**For more information, please visit**

[gemalto.com/m2m](http://gemalto.com/m2m), [www.facebook.com/gemalto](http://www.facebook.com/gemalto), or Follow @gemaltom2m on twitter.

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