EHS5 mini PCIe

Dual-Band 3G
GPRS / EDGE Class 12
Universal SIM Interface

Dual-Band 2G
USB 2.0
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 miniPCIe
The Solution for Cloud Connected Intelligent Systems

The Cinterion EHS5 miniPCIe 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 [miniPCIe], 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 miniPCIe 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 miniPCIe card to transform existing applications into cellular-based smart solutions capable of operation anywhere with cellular coverage. With its straightforward installation and regionally optimized 3G and 2G connectivity, the EHS5 miniPCIe enables cost optimized, broadband cellular connectivity for any PC-based industrial M2M application.

M2M miniPCIe 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 miniPCIe 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 miniPCIe System Connector

The miniPCIe 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 miniPCIe card just needs a USB and SIM interface as well as power supply and control pins for full operation.

Soldered Machine Identification Modules (MIM)TM
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 miniPCIe 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.

— PRELIMINARY VERSION —
## Cinterion® EHS5 miniPCIe 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

- HSPA 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
- 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
  - 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 m2m.gemalto.com, www.facebook.com/gemalto, or Follow @gemaltom2m on twitter.

The information provided in this brochure contains merely general descriptions or characteristics of performance, which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. All product designations may be trademarks or product names of Gemalto M2M GmbH or supplier companies whose use by third parties for their own purposes could violate the rights of the owners. Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners. ARM9 is a registered trademark of ARM Limited.

Gemalto M2M GmbH
St.-Martin-Str. 60
81541 Munich
Germany