

# 3G

## M2M Advanced



**CINTERION**  
WIRELESS MODULES

### Wireless Module HC28

Bringing Japanese business up to speed



M2M  
Advanced



HSDPA



Serial Interface



EDGE  
Class 10



Japanese  
Approval



GPRS  
Class 10



Tri-Band 3G



RIL Driver



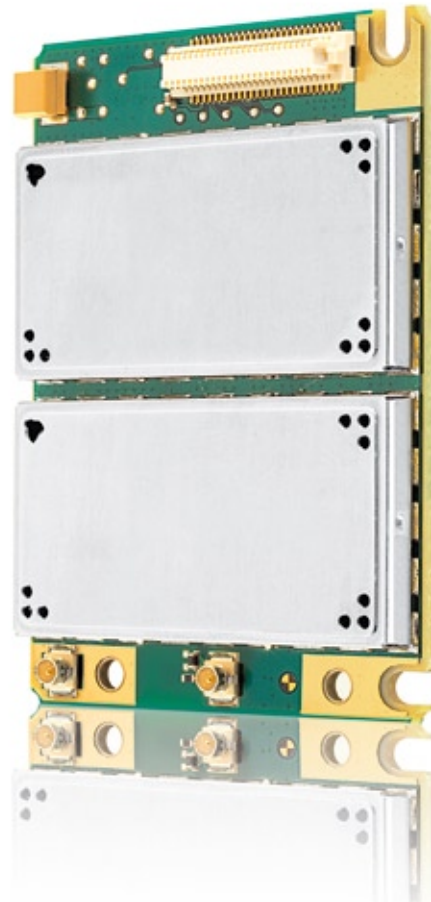
Quad-Band 2G



USB



GPS



The HC28 is optimized for the Japanese market and offers as the first module on the market full roaming capability with the rest of the world. With HSDPA 3.6 Mbit/s download speed, Tri-Band UMTS/HSDPA, Quad-Band GSM/ GPRS/EDGE, RIL/NDIS/USB driver for Microsoft® Windows Mobile™-based devices and a robust mounting and interface concept, the HC28 is a breakthrough for mobile devices. Possible applications include gateways, industrial handhelds, fleet management, security, vending solutions and much more.

Beyond that, the HC28 offers on board GPS functionality, making it a good choice for tracking applications. HSDPA (High Speed Downlink Packet Access) technology is a transmission standard based on UMTS technology.

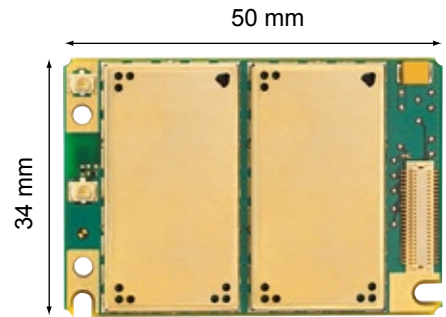
This technology, in combination with full voice and data capability, a USB 2.0 full-speed interface or the typical industrial interface, the serial port, all connected via a rugged board-to-board connector, gives manufacturers an opportunity to develop new devices and solutions very quickly and at a low cost of ownership.

The HC28 enables services like broadband Internet and e-mail access, high-speed downloading of large files and video and music streaming.

In addition, the HC28 comes with full type approval. In particular, this includes the necessary Japanese certifications: JATE and TELEC. It has also been approved according to R&TTE, GCF, FCC and PTCRB, ensuring worldwide functionality.

# Wireless Module HC28

## Bringing Japanese business up to speed



### General features

- Tri-Band UMTS/HSDPA (WCDMA/FDD) 850/1900/2100 MHz
- Quad-Band GSM 850/900/1800/1900 MHz
- EDGE (E-GPRS) multi-slot class 10
- GPRS multi-slot class 10
- UMTS/HSDPA 3GPP release 5
- GSM 3GPP release 99
- Output power:
  - Class 4 (2 W) for GSM900
  - Class 3 (0.25 W) for UMTS/HSDPA
  - Class E2 (0.5 W) for EDGE900
  - Class E2 (0.4 W) for EDGE1800
  - Class 1 (1 W) for GSM1800
- Control via AT commands (Hayes 3GPP TS 27.007 and 27.005)
- SIM Application Toolkit (release 99)
- Supply voltage range: 3.2 ... 4.2 V
- Power consumption:
  - Power down 50  $\mu$ A
  - HSDPA @+10dB 420 mA
- Temperature range
  - Normal Operation: -20°C to +65°C
  - Restricted Operation: -30°C to +75°C
  - Storage: -40°C to +85°C
- Dimensions: 34 x 50 x 4.5 mm
- Weight: approx. 10g

### Specification for HSDPA

- data transmission**
- max. 3.6 Mbps (DL), max. 384 kbps (UL)
  - UE CAT [1-6], 11, 12 supported
  - Compressed mode according to 3GPP TS 25.212

### Specification for UMTS

- data transmission**
- max. 384 kbps (DL), max. 384 kbps (UL)

### Specification for EDGE

- data transmission**
- Class 10: max. 237 kbps (DL), max. 118 kbps (UL)
  - Mobile station class B
  - Modulation and coding scheme MCS 1-9

### Specification for GPRS

- data transmission**
- Class 10: max. 85.6 kbps (DL), max. 42.8 kbps (UL)
  - Mobile station class B
  - Full PBCCH support
  - Coding schemes CS 1-4

### Specification for CS

- data transmission**
- GSM CSD data rate 14.4 kbps, V.110
  - 3G UDI data rate 64 kbps, X.31
  - Non-transparent and transparent mode

### Specification for SMS

- Point-to-point MO and MT
- SMS cell broadcast
- Text and PDU mode

### Specification for GPS

- Tracks up to 13 satellites, L1 1575.42 MHz
- Accuracy Position: 2.5 m CEP; 5.0 m SEP
- Protocols: NMEA-0183 V2.3
- GPS dedicated AT commands
- Date WGS-84
- Tracking sensitivity: -158 dBm (with active antenna)
- Start-up Time: Hot start: <3s, Warm start: 30s, Cold start: 30s
- GPS active antenna supply: 3.3 V

### Specification for fax

- Group 3, class 1

### Specification for voice

- Triple-rate codec for HR, FR and EFR
- GSM & UMTS: Adaptive multi-rate AMR
- DTMF supported
- CEPT/ANSI supervisory tones supported
- Handset, Headset, Handsfree modes
- TTY supported

### Special features

- NDIS/USB driver for Microsoft® Windows XP™ & Microsoft® Windows Vista™
- RIL/NDIS/USB driver for devices based on Microsoft® Windows Mobile™6
- Multiplex driver for Microsoft® Windows XP™ & Microsoft® Windows Vista™
- USB driver for Microsoft® Windows CE™ 5.0
- Firmware update via USB & serial interface

### Special Japanese features

- DSAC
- 3G UDI data transmission
- Operator network subset lock
- Service provider lock: as variant
- Japanese approvals

### Interfaces

- U.FL-R-SMT 50  $\Omega$  antenna connector
- Antenna pad
- 50-pin board-to-board connector
  - Power supply
  - Audio: 1 x analog
  - USB 2.0 full speed
  - UICC/SIM card interface 3 V, 1.8 V
  - Emergency-off & Network status
  - Serial Interface ASC0

### Approvals

- R&TTE, GCF, CE, FCC, PTCRB,
- JATE, TELEC (Japanese certificates)
- Japanese operator approval

### Cinterion Global Support

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.

The Cinterion support includes:

- Personal design-in consulting for hardware and software
- Extensive RF test capabilities
- GCF/PTCRB conform pretests to validate approval readiness
- Guidelines for local approvals and acceptances
- Regular training workshops



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Further information about our products and services is also accessible via [www.cinterion.com](http://www.cinterion.com)

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