# The scalable platform that fits all your needs



### MC75i, TC65i, and TC63i Wireless Modules

EDGE, GPRS, GSM, Java<sup>™</sup>, optimized size and performance (with an ARM9 processor), RLS Monitor (Jamming Detection) – these are just a few of the features offered by the MC75i, TC65i, and TC63i. Apart from the difference in lengths, the new platform's modules are compatible with the MC75, TC65, and TC63 modules. The three new modules share the same technology platform offering Quad-Band GSM,TCP/IP functionality, and M2M interfaces such as a serial or I<sup>2</sup>C bus. They also share the same size, mounting arrangement, and command set, ensuring full compatibility. Designed to satisfy the needs of different M2M applications such as metering, security, and remote maintenance and control, each module's focus varies in terms of data transmission speed and the Java<sup>™</sup> open platform. The feature rich platform affords you great flexibility, enabling you to respond to changing demands simply by switching to another of the platform's modules. The hallmarks of this new platform include optimized performance, miniaturized dimensions, and enriched features. And with all this, it offers three topdrawer modules today that are ready to satisfy tomorrow's demands.



Quad-Band



EDGE Class 12

GPRS Class 12

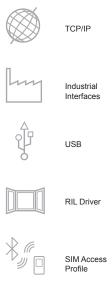
((A)))



.ΙΑ\/Α™



Powerful Processor Large Memory





www.cinterion.com

## The scalable platform that fits all your needs MC75i, TC65i, and TC63i Wireless Modules

#### MC75i Wireless Module – EDGE up your business

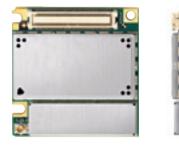
EDGE, short for Enhanced Data rates for GSM Evolution, is the fastest transmission standard in GSM networks. The MC75i lets you apply this technology wherever you wish to transmit certain data. Alongside this core technology, the MC75i comes with a TCP/IP stack, serial and USB ports, and a RIL driver for Microsoft© Windows Mobile ™- based devices.

#### TC65i Wireless Module – The M2M application platform

At the heart of the TC65i is the Java<sup>™</sup> Virtual Machine, making it a highperformance, open-platform module. The powerful Java<sup>™</sup> platform runs on the embedded hardware, like the ARM9 processor and the memory which is tuned and aligned to it. The TC65i leverages this platform-and-processor combination alongside GPRS technology, a TCP-IP stack, and an array of industrial interfaces such as SPI, I<sup>2</sup>C bus, AD/DA converter, and GPIOs to speed up time to market and cut development costs.

#### TC63i Wireless Module – Top-of-the-scale M2M connectivity

The TC63i features GPRS class-12 functionality, an integrated TCP/IP stack, and comes without the onboard software developer platform. This makes it the perfect choice for M2M applications where a microcontroller is already available and only a highperformance wireless communications connection is needed. Rounding out the product platform, the TC63i embodies the grow-as-you-go benefits of this triple-module package: You can use it to satisfy basic GPRS needs, and as demand for EDGE technology grows, switch to the MC75i without investing money to redevelop the application.



Like all Cinterion modules, the MC75i, TC65i, and TC63i come with full type approval (FTA). They have also been approved by major network carriers around the world, including US operators.

*Global thinking, local understanding.* 



U.K.  $\leftarrow$  Football  $\rightarrow$  USA

#### Here, there and everywhere

Global but local – Cinterion lives up to this motto! Not only are we present locally but we are also able to open up amazing global business perspectives for you! Find the details of your local Cinterion contact partner here: www.cinterion.com

#### **Technical Support**

Our application engineers support you from the design-in phase over the integration of the module into the application to the certification process.

#### We protect your business

Profit from our strong Intellectual Property Rights position (IPR) – guarded by our legal professionalism you secure the fruits of your business effort.

General features Quad-Band GSM 850/900/1800/1900 MHz	•			
	•			
	•	•	•	
EDGE (E-GPRS) multi-slot class 12	•			
GPRS multi-slot class 12	•	•	•	
GSM release 99	•	•	•	
Output power				
- Class 4 (2W) for EGSM850	•	•	•	
- Class 4 (2 W) for EGSM900	•	•	•	
- Class 1 (1 W) for GSM1800	•	•	٠	
- Class 1 (1 W) for GSM1900	•	•	•	
Control via AT commands (Hayes 3GPP TS 27.007 and 27.005)	•	•	٠	
SIM Application Toolkit (release 99)	•	•	•	
TCP/IP stack access via AT commands	•	•	•	
Internet services: TCP, UDP, HTTP, FTP, SMTP, POP3	•	•	•	
Supply voltage range: 3.2 4.5 V	•	•	•	
Charging control for Lithium batteries	•	•	•	
Temperature range				
- Normal Operation: -30°C to +65°C	•	•	•	
- Restricted Operation: -40°C to +75°C	•	•	•	
- Switch off: +80°C	•	•	•	
- Storage: -40°C to +85°C	•	•	•	
Dimensions: 33,9 x 35 x 3,3 mm	•	•	٠	
Weight: 7.5 g	•	•	٠	
Specification for EDGE data transmission				
EDGE class 12: max. 236.8 kbps (DL and UL)	•			
Mobile station class B	•			
Modulation and coding schemes MCS 1-9	•			
Specification for GPRS data transmission				
GPRS class 12: max. 86 kbps (DL and UL)	•	•	•	
Mobile station class B	•	•	•	
PBCCH support	•	•	•	
Coding schemes CS 1-4	•	•	•	
Specification for CSD data transmission				
Up to 14.4 kbps	•	•	•	
V.110	•	•	•	
Non-transparent mode	•	•	•	
USSD support	•	•	•	
Specification for SMS				
Point-to-point MO and MT	•	•	•	
SMS cell broadcast	•	•	•	
Text and PDU mode	•	•	•	
Specification for fax				
Group 3, class 1	•	•	٠	
Specification for voice				
Triple-rate codec for HR, FR, and EFR	•	•	•	
Adaptive multi-rate AMR	•	•	•	
Desis hands for a sussetion	•	•	•	
Basic hands-free operation				
Basic hands-free operation       Echo cancellation	•	•	•	

Java ™ featuresCLOC 1.1 H1 </th <th></th> <th>MC75i</th> <th>10651</th> <th>10631</th>		MC75i	10651	10631		
Java ™ profile IMP-NGImage: Constraint of the image: Constraint of the	Java™ features					
Secure data transmission with HTTPS, SSL, and PKI•Open application resources•ARM9© Core, Blackfin© DSP•Memory: 400 KB (RAM) and 1.7 MB (Flash)•Improved power-saving modes•Over-the-air update•Application SW: OTAP•Firmware: FOTA•Special featuresRIL driver for Microsoft® Windows Mobile™•Multiplex driver for Microsoft® Windows XP™•Multiplex driver for Microsoft® Windows Mobile™•Multiplex driver for Microsoft® Windows Mobile™•Multiple Microsoft® Windows	CLDC 1.1 HI		•			
Open application resourcesARM9@ Core, Blackfin@ DSPMemory: 400 KB (RAM) and 1.7 MB (Flash)Improved power-saving modesOver-the-air updateApplication SW: OTAPFirmware: FOTASpecial featuresRIL driver for Microsoft® Windows Mobile™ based devicesMultiplex driver for Microsoft® Windows Mobile™ based devicesMultiplex driver for Microsoft® Windows XP™ and Vista™Character framing 7E1 and 8E1 at serial interfaceProgrammable module resetSIM Access Profile integratedItrose U.FL-R-SMT 50 Ω antenna connectorAntenna solder pad </td <td>Java™ profile IMP-NG</td> <td></td> <td>•</td> <td></td>	Java™ profile IMP-NG		•			
ARM9© Core, Blackfin© DSPImage and the set of the s	Secure data transmission with HTTPS, SSL, and PKI		•			
Memory: 400 KB (RAM) and 1.7 MB (Flash)I•Improved power-saving modes••Over-the-air update••Application SW: OTAPI•Firmware: FOTAI•Special features••RIL driver for Microsoft® Windows Mobile™••based devicesI•Multiplex driver for Microsoft® Windows XP™••Multiplex driver for Microsoft® Windows Mobile••Multiplex driver for Microsoft® Windows XP™••Multiplex driver for Microsoft® Windows Mobile••Ruber Mathematic Math	Open application resources					
Improved power-saving modes•Over-the-air updateApplication SW: OTAP•Firmware: FOTA•Special featuresRIL driver for Microsoft® Windows Mobile™ based devices•Multiplex driver for Microsoft® Windows Mobile™ based devices•Multiplex driver for Microsoft® Windows Mobile™ based devices•Multiplex driver for Microsoft® Windows XP™ and Vista™•Character framing 7E1 and 8E1 at serial interface•Programmable module reset•SIM Access Profile integrated•RLS Monitor (Jamming Detection)•InterfacesHirose U.FL-R-SMT 50 Ω antenna connector•Antenna solder pad•Molex 80-pin board-to-board connector•Power supply•- Audio: 2 x analog, 1 x digital•- SIM card interfaces (ITU-T V.24 protocol)•- USB 2.0 full speed•- SIM card interface 3 V, 1.8 V•- PC bus•- SPI bus•- 2 x analog in (ADC)•- 1 x analog out (PWM)•- 1 x analog out (PWM)•- Multiple GPIOs•Approvals•RETE, F.CC, UL, IC, GCF, PTCRB, CE••••••••••••••••••••••••••	ARM9© Core, Blackfin© DSP		•			
Over-the-air updateApplication SW: OTAPFirmware: FOTASpecial featuresRIL driver for Microsoft® Windows Mobile™Multiplex driver for Microsoft® Windows Mobile™Multiplex driver for Microsoft® Windows XP™Multiplex driver for Microsoft® Windows XP™Multiplex driver for Microsoft® Windows XP™Character framing 7E1 and 8E1 at serial interfaceProgrammable module resetSIM Access Profile integratedRLS Monitor (Jamming Detection)InterfacesHirose U.FL-R-SMT 50 Ω antenna connectorAntenna solder padMolex 80-pin board-to-board connectorPower supply-Audio: 2 x analog, 1 x digital-SIM card interfaces (ITU-T V.24 protocol)-USB 2.0 full speedSIM card interface 3 V, 1.8 V-PC bus-SI bus-SI bus-2 x analog in (ADC)-1 x analog out (PWM)-1 x analog out (PWM)-Multiple GPIOSApprovalsR&TTE, FCC, UL, IC, GCF, PTCRB, CENote STARRRRRRRRRRRRRRRRRRRRRRRR	Memory: 400 KB (RAM) and 1.7 MB (Flash)		•			
Application SW: OTAPImage: Constant of the second sec	Improved power-saving modes		•			
Firmware: FOTAImage: Constraint of the second	Over-the-air update					
Special featuresRIL driver for Microsoft® Windows Mobile™ based devices••·•Multiplex driver for Microsoft® Windows Mobile™ and Vista ™••·•Multiplex driver for Microsoft® Windows XP ™ and Vista ™••••Character framing 7E1 and 8E1 at serial interface••••Programmable module reset••••••SIM Access Profile integrated••••••RLS Monitor (Jamming Detection)••••••Interfaces••••••Hirose U.FL-R-SMT 50 Ω antenna connector••••••Antenna solder pad••••••Audio: 2 x analog, 1 x digital••••••- Power supply••••••- SIM card interface 3 V, 1.8 V••••••- SPI bus••••••••- SPI bus••••••••- 1 x analog out (PWM)••••••- 1 x analog out (PWM)••••••- Approvals••••••- R&TTE, FCC, UL, IC, GCF, PTCRB, CE••••••	Application SW: OTAP		•			
RIL driver for Microsoft® Windows Mobile™ based devices••·•·Multiplex driver for Microsoft® Windows Mobile™••··Multiplex driver for Microsoft® Windows XP™ and Vista ™••·•·Character framing 7E1 and 8E1 at serial interface••••••Programmable module reset••••••••SIM Access Profile integrated••••••••RLS Monitor (Jamming Detection)••••••••Interfaces••••••••••Hirose U.FL-R-SMT 50 Ω antenna connector••••••••Antenna solder pad••••••••••Molex 80-pin board-to-board connector••••••••• Power supply••••••••••• Audio: 2 x analog, 1 x digital••••••••• USB 2.0 full speed••••••••••• IPC bus••••••••••••• Plus••••••••••••• IPC bus••••••••••••• Provals••••••••••••• Antenna og out (PWM)••••••••••• Approvals••••••••••••• Approvals••••••••••••• Approvals•••• <td< td=""><td>Firmware: FOTA</td><td></td><td>•</td><td></td></td<>	Firmware: FOTA		•			
based devices••••Multiplex driver for Microsoft® Windows Mobile ™••Multiplex driver for Microsoft® Windows XP ™ and Vista ™••••Character framing 7E1 and 8E1 at serial interface••••Programmable module reset••••••SIM Access Profile integrated••••••RLS Monitor (Jamming Detection)••••••Interfaces••••••Hirose U.FL-R-SMT 50 Ω antenna connector••••••Antenna solder pad••••••Molex 80-pin board-to-board connector••••••- Power supply••••••- Audio: 2 x analog, 1 x digital••••••- SIM card interface 3 V, 1.8 V••••••- SIM card interface 3 V, 1.8 V••••••- SPI bus••••••••- 1 x analog out (PWM)••••••- Autiple GPIOs••••••- R&TTE, FCC, UL, IC, GCF, PTCRB, CE••••••	Special features					
Multiplex driver for Microsoft® Windows XP™Multiplex driver for Microsoft® Windows XP™Character framing 7E1 and 8E1 at serial interfaceProgrammable module resetSIM Access Profile integratedRLS Monitor (Jamming Detection)InterfacesHirose U.FL-R-SMT 50 Ω antenna connectorAntenna solder padMolex 80-pin board-to-board connectorPower supply Audio: 2 x analog, 1 x digital 2 x serial interfaces (ITU-T V.24 protocol) USB 2.0 full speed SIM card interface 3 V, 1.8 V SPI bus 2 x analog in (ADC) 1 x analog out (PWM) Multiple GPIOsApprovalsR&TTE, FCC, UL, IC, GCF, PTCRB, CE		•				
and Vista ™············Character framing 7E1 and 8E1 at serial interface●●●●Programmable module reset●●●●●SIM Access Profile integrated●●●●●RLS Monitor (Jamming Detection)●●●●●Interfaces●●●●●Mirose U.FL-R-SMT 50 Ω antenna connector●●●●●Antenna solder pad●●●●●●Molex 80-pin board-to-board connector●●●●●●- Power supply●●●●●●●- Audio: 2 x analog, 1 x digital●●●	Multiplex driver for Microsoft® Windows Mobile™	•				
Programmable module reset●●●SIM Access Profile integrated●●●RLS Monitor (Jamming Detection)●●●Interfaces●●Hirose U.FL-R-SMT 50 Ω antenna connector●●●Antenna solder pad●●●Molex 80-pin board-to-board connector●●●- Power supply●●●●- Audio: 2 x analog, 1 x digital●●●- 2 x serial interfaces (ITU-T V.24 protocol)●●●- USB 2.0 full speed●●●●- SIM card interface 3 V, 1.8 V●●●●- SPI bus●●●●●- 2 x analog in (ADC)●●●●●- Multiple GPIOs●●●●●R&TTE, FCC, UL, IC, GCF, PTCRB, CE●●●●		•	•	•		
SIM Access Profile integratedImage: Simple stateImage: Simple stateRLS Monitor (Jamming Detection)Image: Simple stateImage: Simple stateInterfacesImage: Simple stateImage: Simple stateHirose U.F.L-R-SMT 50 Ω antenna connectorImage: Simple stateImage: Simple stateAntenna solder padImage: Simple stateImage: Simple stateImage: Simple stateMolex 80-pin board-to-board connectorImage: Simple stateImage: Simple stateImage: Simple state- Power supplyImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- Audio: 2 x analog, 1 x digitalImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- Audio: 2 x analog, 1 x digitalImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- USB 2.0 full speedImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- SIM card interface 3 V, 1.8 VImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- SPI busImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- SPI busImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- T x analog out (PWM)Image: Simple stateImage: Simple stateImage: Simple stateImage: Simple stateImage: Simple state- ApprovalsImage: Simple stateImage: Simple state <td>Character framing 7E1 and 8E1 at serial interface</td> <td>•</td> <td>•</td> <td>•</td>	Character framing 7E1 and 8E1 at serial interface	•	•	•		
RLS Monitor (Jamming Detection)•••InterfacesHirose U.F.L-R-SMT 50 Ω antenna connector•••Antenna solder pad•••Molex 80-pin board-to-board connector•••- Power supply•••- Audio: 2 x analog, 1 x digital•••- Audio: 2 x analog, 1 x digital•••- SIM card interfaces (ITU-T V.24 protocol)•••- USB 2.0 full speed•••- SIM card interface 3 V, 1.8 V•••- IPC bus••••- SPI bus••••- 1 x analog out (PWM)••••- Multiple GPIOs••••R&TTE, FCC, UL, IC, GCF, PTCRB, CE••••	Programmable module reset	•	•	•		
InterfacesHirose U.FL-R-SMT 50 Ω antenna connector●●Antenna solder pad●●Molex 80-pin board-to-board connector●●- Power supply●●- Audio: 2 x analog, 1 x digital●●- 2 x serial interfaces (ITU-T V.24 protocol)●●- USB 2.0 full speed●●- SIM card interface 3 V, 1.8 V●●- IPC bus●●- SPI bus●●- 2 x analog in (ADC)●●- 1 x analog out (PWM)●●- Multiple GPIOs●●Approvals●R&TTE, FCC, UL, IC, GCF, PTCRB, CE●●	SIM Access Profile integrated	•	•	•		
Hirose U.FL-R-SMT 50 Ω antenna connector         ●         ●           Antenna solder pad         ●         ●           Molex 80-pin board-to-board connector         ●         ●           - Power supply         ●         ●           - Audio: 2 x analog, 1 x digital         ●         ●           - Audio: 2 x analog, 1 x digital         ●         ●           - 2 x serial interfaces (ITU-T V.24 protocol)         ●         ●           - USB 2.0 full speed         ●         ●           - SIM card interface 3 V, 1.8 V         ●         ●           - IPC bus         ●         ●         ●           - SPI bus         ●         ●         ●           - 1 x analog out (PWM)         ●         ●         ●           - Multiple GPIOs         ●         ●         ●           Approvals         ■         ●         ●	RLS Monitor (Jamming Detection)	•	•	•		
Antenna solder pad         Image: mail of the solution of the	Interfaces					
Molex 80-pin board-to-board connector         ●         ●         ●           - Power supply         ●         ●         ●           - Audio: 2 x analog, 1 x digital         ●         ●         ●           - 2 x serial interfaces (ITU-T V.24 protocol)         ●         ●         ●           - USB 2.0 full speed         ●         ●         ●         ●           - SIM card interface 3 V, 1.8 V         ●         ●         ●         ●           - I°C bus         ● <td< td=""><td>Hirose U.FL-R-SMT 50 <math display="inline">\Omega</math> antenna connector</td><td>•</td><td>•</td><td>•</td></td<>	Hirose U.FL-R-SMT 50 $\Omega$ antenna connector	•	•	•		
- Power supply         ●         ●         ●           - Audio: 2 x analog, 1 x digital         ●         ●         ●           - 2 x serial interfaces (ITU-T V.24 protocol)         ●         ●         ●           - USB 2.0 full speed         ●         ●         ●         ●           - SIM card interface 3 V, 1.8 V         ●         ●         ●         ●           - I°C bus         ●         ●         ●         ●         ●           - SPI bus         ●	Antenna solder pad	•	•	•		
- Audio: 2 x analog, 1 x digital       •       •       •         - 2 x serial interfaces (ITU-T V.24 protocol)       •       •       •         - USB 2.0 full speed       •       •       •       •         - SIM card interface 3 V, 1.8 V       •       •       •       •         - I°C bus       •       •       •       •       •         - I°C bus       •       •       •       •       •         - SPI bus       •       •       •       •       •         - 2 x analog in (ADC)       •       •       •       •       •         - 1 x analog out (PWM)       •       •       •       •       •         - Multiple GPIOs       •       •       •       •       •         Approvals        •       •       •       •       •	Molex 80-pin board-to-board connector	•	•	•		
- 2 x serial interfaces (ITU-T V.24 protocol)       •       •       •         - USB 2.0 full speed       •       •       •       •         - SIM card interface 3 V, 1.8 V       •       •       •       •         - IPC bus       •       •       •       •       •         - IPC bus       •       •       •       •       •         - SPI bus       •       •       •       •       •         - 2 x analog in (ADC)       •       •       •       •         - 1 x analog out (PWM)       •       •       •       •         - Multiple GPIOs       •       •       •       •         Approvals        •       •       •	- Power supply	•	•	•		
- USB 2.0 full speed         ●         ●         ●           - SIM card interface 3 V, 1.8 V         ●         ●         ●           - IPC bus         ●         ●         ●         ●           - SPI bus         ●         ●         ●         ●         ●           - 2 x analog in (ADC)         ●	- Audio: 2 x analog, 1 x digital	•	•	•		
SIM card interface 3 V, 1.8 V         •         •         •           - I <sup>2</sup> C bus         •         •         •         •           - SPI bus         •         •         •         •         •           - 2 x analog in (ADC)         •         •         •         •         •           - 1 x analog out (PWM)         •         •         •         •         •           - Multiple GPIOs         •         •         •         •         •         •           Approvals          •         •         •         •         •         •	- 2 x serial interfaces (ITU-T V.24 protocol)	•	•	•		
- I²C bus         ●         ●           - SPI bus         ●         ●           - 2 x analog in (ADC)         ●         ●           - 1 x analog out (PWM)         ●         ●           - Multiple GPIOs         ●         ●           Approvals          ●           R&TTE, FCC, UL, IC, GCF, PTCRB, CE         ●         ●	- USB 2.0 full speed	•	•	•		
SPI bus         • </td <td>- SIM card interface 3 V, 1.8 V</td> <td>•</td> <td>•</td> <td>•</td>	- SIM card interface 3 V, 1.8 V	•	•	•		
- 2 x analog in (ADC)         •           - 1 x analog out (PWM)         •           - Multiple GPIOs         •           Approvals         •           R&TTE, FCC, UL, IC, GCF, PTCRB, CE         •         •	- I <sup>2</sup> C bus	•	•	•		
- 1 x analog out (PWM)         •           - Multiple GPIOs         •           Approvals         •           R&TTE, FCC, UL, IC, GCF, PTCRB, CE         •         •	- SPI bus	•	•	•		
- Multiple GPIOs         •           Approvals         •           R&TTE, FCC, UL, IC, GCF, PTCRB, CE         •         •	- 2 x analog in (ADC)		•			
Approvals R&TTE, FCC, UL, IC, GCF, PTCRB, CE	- 1 x analog out (PWM)		•			
R&TTE, FCC, UL, IC, GCF, PTCRB, CE	- Multiple GPIOs		•			
	Approvals					
Local approvals and network operator certifications	R&TTE, FCC, UL, IC, GCF, PTCRB, CE	•	•	•		
	Local approvals and network operator certifications	•	•	•		

MC75i TC65i TC63i

MC75i TC65i TC63i

Cinterion Wireless Modules St-Martin-Str. 53 81669 Munich, Germany

Further information about our products and services is also accessible via www.cinterion.com

Java and the Java logo are registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

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 Cinterion or supplier companies whose use by third parties for their own purposes could violate the rights of the owners. Java and the Java logo are registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

© Copyright 2008, Cinterion • Subject to changes in technology , design and availability • Order No: A31001-W25-A403-X-7600 • Printed in Germany