



CINTERION
WIRELESS MODULES

Differences between TC35iT, MC35iT and MC55iT/MC52iT

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Product Comparison

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0 Document History

New document: "Differences between TC35iT, MC35iT and MC55iT/MC52iT" Version 01

New document: "Differences between TC35iT, MC35iT and MC55iT/MC52iT" Version 02

Chapter	What is new
2	Added RTC reset timing.
3.1	Added operating temperature values for MC55iT/MC52iT.

New document: "Differences between TC35iT, MC35iT and MC55iT/MC52iT" Version 01

Chapter	What is new
---	Initial document setup.

1 Introduction

This document¹ compares the Cinterion wireless terminals TC35iT, MC35iT and MC55iT/MC52iT. It lists hardware as well as software related differences between these terminals.

The aim of the document is to provide information and to offer support in order to facilitate a possible migration from TC35iT or MC35iT to MC55iT/MC52iT.

1.1 Related Documents

- [1] TC35iT Hardware Interface Description
- [2] MC35iT Hardware Interface Description
- [3] MC55iT/MC52iT Hardware Interface Description
- [4] TC35iT AT Command Set
- [5] MC35iT AT Command Set
- [6] MC55iT/MC52iT AT Command Set

1.2 Type Approval

For regulatory and type approval information and differences see [1] and [3].

¹ The document is effective only if listed in the appropriate Release Notes as part of the technical documentation delivered with your Cinterion wireless product.

2 Properties Overview

The following table compares general properties of TC35iT/MC35iT and MC55iT/MC52iT and lists differences between the terminals. Where appropriate, differences are described in more detail in the next sections.

Feature	MC55iT/MC52iT	TC35iT/MC35iT
Interface properties		
<i>Serial interface</i>		
Baud rate	300bps to 115,200bps	300bps to 115,200bps
Character framing	8N1	8N1 <i>TC35iT only:</i> 7E1,7O1, 8E1, 8O1, 8N2
Autobauding	1,200bps to 115,200bps	1,200bps to 115,200bps
Flow control	RTS/CTS, XON/XOFF	RTS/CTS, XON/XOFF
Control lines	Ring, DTR, DSR, DCD, CTS, RTS	Ring, DTR, DSR, DCD, CTS, RTS
<i>Audio</i>		
Analog interface	Include MIC feeding, Rin 4.3kOhm, Rout 15Ohm	Include MIC feeding, Rin 1.5kOhm, Rout 15Ohm
SIM interface	3V and 1,8V cards supported	3V cards supported
Switch on with DTR	Yes	Yes
Emergency switch off	Yes	Yes
Real time clock (RTC)	Yes, backup as long as power is supplied (RTC reset, if power fails for >15s)	Yes, backup as long as power is supplied (RTC reset, if power fails for >7s)
Thermal shutdown	Yes	Yes
Status LED	Yes	Yes <i>TC35iT only:</i> Signaling additional status in SLEEP mode
SYNC/Status LED	LED (AT^SSYNC=1)	LED (AT^SSYNC=1) <i>TC35iT only:</i> LED (AT^SSYNC=2)
Other Properties		
Power saving (AT+CFUN=<fun>)	Functionality level: <fun> = 0, 1, 5, 6, 7, 8 or 9	Functionality level: <fun> = 0, 1, 5, 6, 7 or 8
<i>Modes</i>		
Normal mode	Yes	Yes
Power down mode	Yes	Yes
GPRS class	<i>MC55iT only:</i> GPRS class 10 <i>MC52iT only:</i> GPRS class 8	GPRS class 8 <i>TC35iT only:</i> No GPRS
Speech codecs	HR, FR, EFR, AMR	HR, FR, EFR
GSM bands	<i>MC55iT only:</i> Quad band: 850/900/1800/1900 <i>MC52iT only:</i> Dual band: 900/1800	Dual band: 900/1800
Phone books	FD, SM, ON, ME, LD, MC, RC, VM (=CPHS voice mailbox)	FD, SM, ON, ME, LD, MC, RC

3 Hardware Related Differences

The focus of this chapter is on differences in hardware related properties between TC35iT, MC35iT and MC55iT/MC52iT.

3.1 Operating Temperature

The operating temperatures for the terminals are listed in the following table.

Table 1: Ambient operating temperature according to IEC 60068-2 (w/o forced air circulation)

Parameter	Unit	TC35iT/MC35iT		MC55iT/MC52iT	
		Min	Max	Min	Max
Operating temperature range	°C	-20.	+55	-20	+65
Restricted temperature range	°C	-20 to -25	+55 to +60	-20 to -30	+65 to +75
Automatic shutdown Temp. measured on board	°C	-25	≥+60	<-30	>+75

Reference:

- “Hardware Interface Description”: Section “Electrical and environmental characteristics” (TC35iT/MC35iT) or Section “Operating Temperatures” (MC55iT/MC52iT)

3.2 Audio Interface

TC35iT, MC35iT and MC55iT/MC52iT provide an analog audio interface. While TC35iT and MC35iT support the HR, FR, EFR speech codecs, MC55iT/MC52iT also supports the additional AMR codec.

Further audio interface differences are listed in the tables below. These tables are details taken from the MC55iT/MC52iT Hardware Interface Description ([3]) and show the differences to the TC35iT and MC35iT Hardware Interface Descriptions ([1] and [2]).

Table 2: Audio modes

Audio mode number: AT^SNFS=	1 (Default settings, not adjustable)	4	5
Echo control (send)	MC55iT/MC52iT: Cancellation TC35iT/MC35iT: Suppression	MC55iT/MC52iT: Cancellation TC35iT/MC35iT: Suppression	No
Limiter (receive)	MC55iT/MC52iT: No TC35iT/MC35iT: Yes	MC55iT/MC52iT: No TC35iT/MC35iT: Yes	No

Audio mode number: AT^SNFS=	1 (Default settings, not adjustable)	4	5
MIC input signal for 0dBm0 @ 1024 Hz (at default gain settings)	MC55iT/MC52iT: 18mV TC35iT/MC35iT: 12.5mV	MC55iT/MC52iT: 18mV TC35iT/MC35iT: 12.5mV	315mV
Earpiece output signal in mV eff. @ 0dBm0, 1024 Hz, no load (at default gain settings); @ 3.14 dBm0	MC55iT/MC52iT: 620mV TC35iT/MC35iT: 275mV	MC55iT/MC52iT: 620mV default @ max volume TC35iT/MC35iT: 275mV default @ max volume	880mV 3.7Vpp
Side tone gain (at default settings)	MC55iT/MC52iT: 21.5dB TC35iT/MC35iT: 27.7dB	MC55iT/MC52iT: 21.5dB TC35iT/MC35iT: 27.7dB	-∞ dB

Table 3: Audio interface specifications

Parameter		Min.	Typ.	Max.	Unit
Microphone MICP, MICN	Impedance Z _i (balanced)	MC55iT/MC52iT: 4.0	MC55iT/MC52iT: 4.3	MC55iT/MC52iT: 4.6	kOhm
		TC35iT/MC35iT: 1.4	TC35iT/MC35iT: 1.5	TC35iT/MC35iT: 1.7	

Table 4: Absolute maximum ratings

Parameter	Port / Description	Min.	Max.	Unit
Earpiece input voltage	EPP, EPN	-0.3	MC55iT/MC52iT: +0.3 TC35iT/MC35iT: +3.3	V

4 Software Related Differences

The focus of this chapter is on software related differences between TC35iT/MC35iT and MC55iT/MC52iT.

4.1 Internet Services

MC55iT/MC52iT supports an embedded TCP/IP stack that is driven by AT commands and enables the host application to easily access services provided by the Internet. For details see [6].

4.2 AT Command Set Differences

The following table lists AT Command Set differences, i.e., commands that exist only for MC55iT/MC52iT as well as commands that are only available for TC35iT or MC35iT.

Please note that the below table lists differences in the set of AT commands available for these products. It does not relate any information on differences within individual commands resp. on features configurable by the same AT command.

For a complete AT command overview (including all differences between TC35iT, MC35iT and MC55iT/MC52iT) please refer to the respective AT Command Specifications, i.e., [4] for TC35iT [5] for MC35iT and [6] for MC55iT/MC52iT.

TC35iT	MC35iT	MC55iT/MC52iT
Configuration commands		
ATV Set CONNECT result code format		
Serial interface control commands		
AT%D Automatic Dial on DTR Line Activation		
AT+ICF Character Framing		
AT+IFC Flow Control		
AT^STPB Transmit Parity Bit (for 7E1 and 7O1 only)		
Call related commands		
		AT^SLCC Extended list of current calls
		ATS2 Set escape sequence character
Network service commands		
		AT^SOPS Extended Operator Selection
AT^SMOND Cell Monitoring		AT^SMOND Cell Monitoring
	AT^SMONG GPRS Monitor	AT^SMONG Packet Data Monitor
AT^SALS Alternate Line Service		AT^SALS Alternate Line Service
		AT+CPOL Preferred Operator List
Supplementary service commands		
		AT+COLP Connected Line Identification Presentation

TC35iT	MC35iT	MC55iT/MC52iT
Internet service commands		
		AT^SICS Internet Connection Setup Profile
		AT^SICI Internet Connection Information
		AT^SISS Internet Service Setup Profile
		AT^SISI Internet Service Information
		AT^SISO Internet Service Open
		AT^SISC Internet Service Close
		AT^SISR Internet Service Read Data
		AT^SISW Internet Service Write Data
		AT^SIST Enter Transparent Access Mode
		AT^SISE Internet Service Error Report
GPRS commands		
		AT+CGANS Manual response to a network request for PDP context activation
		AT+CGAUTO Automatic response to a network request for PDP context activation
		AT+CGEREP GPRS event reporting
	AT^SGACT Query all PDP context activations	
		ATA Manual response to a network request for PDP context activation
		ATS0 Automatic response to a network request for PDP context activation
Short message service (SMS) commands		
AT^SCML List Concatenated Short Messages from preferred store		
AT^SCMR Read Concatenated Short Messages		
AT^SCMS Send Concatenated Short Messages		
AT^SCMW Write Concatenated Short Messages to Memory		
Phonebook commands		
		AT+CNUM Read own numbers
Hardware related commands		
AT^SBV Battery/Supply Voltage		AT^SBV Battery/Supply Voltage