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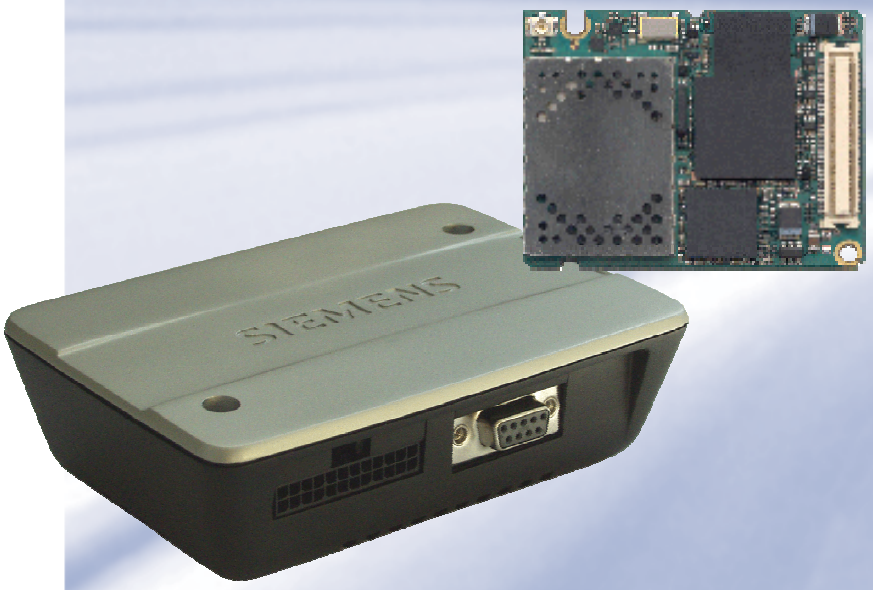

TC65 Module
TC65 Terminal

Siemens Cellular Engines

Version: 02.000
DocID: TC65_rn_v02.000

Release Notes

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Contents

1 Preamble

This Release Note describes the Siemens TC65 Release 02.000. The document briefly summarizes all new features and major changes which have been added since Release 01.041.

Internet Service AT Commands and all other features are documented in separate chapters.

Referred to as TC65, the software applies to the Siemens GSM/GPRS engines
- **TC65 Module**
- **TC65 Terminal**

1.1 Related Documents

[1] TC65 AT Command Set, Version 02.000
[2] TC65 Hardware Interface Description, Version 02.000
[3] TC65 Terminal Hardware Interface Description, Version 02.000
[4] DSB75 Support Box – Evaluation Kit for Siemens Cellular Engines (for TC65 Module only)
[5] Application Note 02: Audio Interface Design for GSM Applications (for TC65 Module only)
[6] Application Note 07: Rechargeable Lithium Batteries in GSM Applications (for TC65 Module only)
[7] Application Note 16: Updating MC75/TC6x Firmware
[8] Application Note 17: Over-The-Air Firmware Update for TC65 and AC75
[9] Application Note 22: Using TTY / CTM Equipment
[10] Application Note 26: Power Supply Design for GSM Applications (for TC65 Module only)
[11] Application Note 24: Application Developer's Guide
[12] Application Note 35: Jamming Detection
[13] Multiplexer User's Guide
[14] Multiplex Driver Developer's Guide for Windows 2000 and Windows XP
[15] Multiplex Driver Installation Guide for Windows 2000 and Windows XP
[16] Remote SAT User's Guide for MC75, TC6x, AC75
[17] TC65 Java User's Guide
[18] Java doc \wtk\doc\html\index.html

2 New and Improved Features

2.1 General Improvements and Changes

AT command / feature	Brief description
Java platform	TC65 now features full support of the Java platform. The TC65 installation CD comes with Java SDK Version 1.4.2_09, Module Exchange Suite (MES), Wireless Toolkit (WTK), Eclipse 3.1.2, EclipseME plugin 1.2.3 and Netbeans 5.0 with Mobility Pack. The software package allows you to easily integrate your Siemens Mobility Toolkit (SMTK) into commonly used Java IDEs, such as NetBeans 5.0, Eclipse 3.1 and JBuilder.
Two serial interfaces for Java CommConnection; System.out configurable with AT^SCFG	The second serial interface ASC1 of TC65 is now fully functional for use with Java, providing the same functionality as the first serial interface ASC0. This improvement implies that the standard output “System.out” is no longer limited to ASC1, but may be routed to different outputs, such as ASC0, ASC1, USB, a UDP port or the Flash File system. Delivery default is ASC1. First of all, this gives you greater flexibility to run Java CommConnections on the two serial interfaces ASC0 and ASC1. Secondly, if System.out is configured for ASC0 or ASC1, the same interface may be used for Java CommConnections as well. To select an interface for System.out use the new parameter “Userware/Stdout” of AT^SCFG.
Disable Java autostart	Together with TC65 02.000, the new command line tool “cmd_autoexec_off.exe” is available on the installation CD, providing an easy way to disable the Java autostart option set with AT^SCFG.
Debug environment	The USB interface can be used for debugging the Java environment.
Java function “available()”	This release fixes the Java function “available()”. The function now returns the number of bytes which can be read without blocking data from the InputStream of a Stream / SocketConnection. The return value is no longer greater than the number of bytes available and, thus, no longer blocks the next caller or method for this input stream.
AT^SJSEC Java security	The AT^SJSEC command provides the additional parameter <untrusted domain>. See [1] and [18] for further details.

AT command / feature	Brief description
Each URC calls a single ATEvent	If several URCs occur in rapid succession these URCs are no longer indicated in the same ATEvent of the interface ATCommandListener. Now, each URC will correctly call one single ATEvent for each URC. In addition, a new indicator has been introduced to notify the user of lost URCs. For details refer to [18], interface ATCommandListener, ATEvent.
Module Exchange Suite (MES)	Operation of the MES is no longer SIM PIN dependent. The MES can be used over the virtual USB COM port.
Password for Java application	The length of the password defined to configure and use Java Autostart is now 8 characters as specified in [1]. The password can be set with AT^SCFG="Userware/Passwd", parameter <upwd>.
AT^SJNET, parameter <dns>	The DNS server IP address can now be entered in the commonly known format, e.g. "192.168.1.2".
RTC wake-up, AT+CALA	The feature RTC wake-up from Power Down mode into Airplane mode is now fully supported and can be used as described in [1] and [2].
AT^SSPI	This release resolves conflicts between the module's USB interface and the two interfaces I^2C or SPI. The I^2C bus or the SPI interface can now be opened and used without any problems when the USB cable is plugged at the same time.
Configuring the IGT line as ON/OFF switch: AT^SCFG, parameter "MEShutdown/OnIgnition"	The IGT line of the TC65 can be configured for use in two different switching modes: You can set the IGT line to switch on the module only, or to switch it on and off. The switching mode is determined by the new parameter "MEShutdown/OnIgnition" of the AT^SCFG command. This approach is useful for application manufacturers who wish to have an ON/OFF switch installed on the host device. By factory default, the "MEShutdown/OnIgnition" parameter is off, meaning that IGT can be used only to switch on the module. Before changing the mode ensure that the application design meets all the requirements specified in [1] and [2].

AT command / feature	Brief description
Shutdown after Illegal Powerup	With this release, an additional alert message has been introduced: If the IGT line is driven low for less than 400ms the TC65 module will, instead of starting up, send only the alert message “SHUTDOWN after Illegal PowerUp” to the host application. The message appears on the serial interfaces ASC0 and ASC1, if the module is configured to a fixed bit rate of 115200bps. It will not be indicated on the USB interface.
AT^SFNUR: Fixed Network User Rate	New AT command designed for use with CSD connections at 14.4 kbps. Enables the user to set different Fixed Network User Rates (if required by the network). AT^SFNUR does not apply to CSD connections based on the embedded TCP/IP stack, but the equivalent “fnur” parameter can be set with AT^SICS. See Chapter 2.2, AT^SICS, “fnur” value.
AT+COPS AT+CREG	If the subscriber manually deregisters from the network (AT+COPS=2) and then attempts to register again automatically (AT+COPS=0), TC65 now correctly delivers the “+CREG: 2” URC while searching.
AT^SRTC, AT^SNFPT, AT^SNFO, AT+CLVL, AT+CMUT, AT^SNFM	The volume of each audio AT command can be changed without impact on the volume of another AT command.
Airplane mode	Airplane mode can now be activated or deactivated as described in [1] for the two commands AT^SCFG="MEopMode/Airplane AT^SCFG="MEopMode/Airplane/OnStart"
Master Phone Code	The command ATD*#0003*MasterPhoneCode# has been consolidated and can be used as described in [1].
AT+CSCA	A Service Center Address (SCA) optionally stored within a PDU short message (SMS-SUBMIT TPPDU) now has priority over the SCA address set with AT+CSCA.

AT command / feature	Brief description
WinMux driver for Multiplex mode	If you plan to use the WinMux driver supplied by Siemens for implementing Multiplex applications under Windows 2000 or Windows XP please ensure to use the latest driver. Particularly if you want to operate the USB interface in Multiplex mode, do not use any WinMux drivers delivered with earlier Siemens GSM module types. The latest version to use with TC65 is 2.3.0.0. To check the version number under Windows right-click the winmux2k.sys file and select the Version tab.
Protocol Stack enhancements	GERAN Feature Package 1: • Supports "Extended Uplink TBF" and "Network Assisted Cell Change" (NACC). Both features improve the performance of a GPRS data transfer. Enhanced Measurement Reports: • This feature improves the performance of voice calls.
Remote SIM Access (RSA)	Remote SIM Access is now implemented according to the “SIM Access Profile Interoperability Specification, Revision 1.0” (SAP) of the Bluetooth Special Interest Group.

2.2 New and Improved Internet Service AT Commands

AT command / feature	Brief description
URC mode / polling mode (controlled with AT^SCFG)	URC mode (delivery default): • The progress of an Internet session is URC driven. The URCs notify the host whether data can be sent or received, whether data transfer has completed, whether the service can be closed or whether an error has occurred. This mechanism eliminates the need to poll the service until the necessary progress information is received. Polling mode: • In polling mode, the presentation of URCs related to the Internet Services is disabled. The host is responsible for retrieving all the status information needed for controlling the Internet session. This is done by polling, where the host application keeps sending the commands AT^SISR, AT^SISW, AT^SISI. The following URCs are disabled: "^SISR" URC, "^SISW" URC and "^SIS" URC for parameter <urcCause>=0 (Internet service events), but not for <urcCause>=1 or 2 (needed for the Socket listener and always enabled). To enable the URC mode select: AT^SCFG="Tcp/WithURCs",on. To enable the polling mode select: AT^SCFG="Tcp/WithURCs", off.
AT^SISI (Status report)	New AT command used to monitor the progress of an Internet session. The command reports the service state of the used service profile and indicates the number of bytes received, the number of bytes sent and, in the case of sending, the number of bytes acknowledged or unacknowledged by the remote peer. Response of the read command: [^SISI: <srvProfileId>, <srvState>, <rxCount>, <txCount>, <ackData>, <unackData>] [^SISI: ...]
AT^SISE (Error report)	New AT command used to query error conditions. If an error occurs during a session you can enter the AT^SISE command and the <srvProfileId> to identify the reason. This is especially important in polling mode. The information received with AT^SISE is identical to the “^SIS” URC which is disabled in polling mode.
AT^SICI (Bearer status)	New AT command used to query the current status of a specific connection profile (bearer). This includes Java GPRS connections (see [1] and [17]).

AT command / feature	Brief description
AT^SICO (Opens bearer)	New AT command used to open a connection profile (bearer). Unlike the AT^SISO command which starts a connection profile and the service profile bound to it, AT^SICO activates only the selected connection profile.
AT^SICC (Closes bearer)	New AT command used to release a connection opened with AT^SICO.
AT^SISX (Ping)	New AT command used to send ICMP (Internet Message Protocol) Echo Requests to a target IP address or host name.
AT^SISO	The functionality of AT^SISO has been refined: • The new service state “Down” has been introduced. • The parameters <srvState>, <rxCount>, <txCount> are the same in the responses of AT^SISO and AT^SISI.
AT^SICS, “fnur” value	New feature for CSD connections at 14.4 kbit/s. Enables the user to select different Fixed Network User Rates (if required by the network). See also AT^SFNUR in Chapter 2.1.
AT^SICS, “inactTO” value	The inactivity timeout defined for the connection profile is no longer limited to “0”. The value can now be user defined, default setting is 20 seconds.
AT^SISS, “hcRedir” value	The default setting of “hcRedir” has been changed from “0” (no redirection) to “1” (redirection possible).
AT^SISR (Peek operator, Indicating end of data transfer)	The AT^SISR command has been enhanced to provide two new features: Peek operator: • The parameter <reqReadLength> (requested read length) now includes the additional value 0, referred to as the peek operator. The peek operator queries the number of received bytes in internal buffers. Indicating end of data transfer: • The parameter <cnfReadLength> has been enhanced. The value -2 indicates that the download job is finished (all data have been read) and the service can be closed with AT^SISC.

AT command / feature	Brief description
AT^SISW (End of data flag, Binary mode, Interactive text mode)	The AT^SISW command has been enhanced to provide two new features: End-of-data flag <eodFlag>: • New parameter to be set in the last AT^SISW command of an upload job. Indicates to the service that the upload data stream is finished. • The end-of-data flag applies only to the services Socket, FTP and SMTP. Binary mode <mode>=0 • This mode allows sending a number of bytes defined with parameter <reqWriteLength>. Interactive text mode <mode> = 1: • This mode allows the user to type and send 8-bit ASCII characters while the service is open. Ctrl-Z terminates data input and causes the data to be transferred.
Socket UDP service configured for use as UDP client or UDP endpoint	TC65 offers now two kinds of Socket service based on the UDP protocol: One is referred to as UDP client intended for connections to a given remote host. In this case the IP address and the UDP port of the remote host are set as a fixed parameter in the service profile created with AT^SISS. The second type, introduced with TC65 02.000, is referred to as UDP endpoint. In this case, the IP address and the UDP port of the remote hosts are handled in each read (AT^SISR) and write (AT^SISW) request. This enables the host application to communicate with different remote hosts.
Performance control solutions for TCP/IP connections	The following parameters have been introduced to control the performance of TCP/IP connections: Selective acknowledge (<tcpSAck>): • Enables / disables TCP extensions according to RFC 1323. • Parameter is set with AT^SCFG="Tcp/SAck",<tcpSAck>. Transaction/TCP (<tcpTtcp>): • Enables / disables T/TCP extension for transaction-oriented service according to RFC 1644. • Parameter is set with AT^SCFG="Tcp/TTcp",<tcpTtcp>.

AT command / feature	Brief description
Retransmission of TCP/IP packets	With Release TC65 02.000 the following parameters have been introduced to control the retransmission of TCP/IP packets. The implementation follows the rules of the RFC 1122 specification. Initial retransmission timeout (<tcpIrt>): • Controls the time (in seconds) the TCP/IP stack will wait before starting the first retransmission of packets during the initial connection setup phase. • Parameter is set with AT^SCFG="TCP/IRT",<tcpIrt> (where <tcpIrt> = 1 to 60 seconds). Maximum number of retransmissions (<tcpMr>): • Specifies the maximum number of times to retransmit TCP packets. • Parameter is set with AT^SCFG and AT^SISS. The setting made with AT^SCFG is a global value and assumed as default when creating a new service profile with AT^SISS, but may be overwritten in each service profile. The value set in a specific service profile has precedence over the setting of AT^SCFG. Overall timer for outstanding connections <tcpOT>: • Specifies the number of seconds to wait before closing a connection if TCP/IP packets are not acknowledged. • Parameter is set with AT^SCFG and AT^SISS. The setting made with AT^SCFG is a global value and assumed as default when creating a new service profile with AT^SISS, but may be overwritten in each service profile. The value set in a specific service profile has precedence over the setting of AT^SCFG.
AT&C	The AT&C command has been enhanced. Now, you can configure the DCD line of the used serial interface to indicate whether an Internet service is active. For Socket, HTTP, SMTP and POP3 the service states "Up" or "Connecting" are indicated, for FTP only the state "Up".

AT command / feature	Brief description
"^SIS:" URC / AT^SISE	New information elements delivered with the parameters <urcInfoId> and, optionally, <urcInfoText> have been introduced. Furthermore, the <urcInfoId> number now clearly identifies the type of information element: 0 Service is working properly 1 – 2000 Error, service is aborted and has entered service state "Down" 4001 – 6000 Warning, but no service abort 6001 – 8000 Notes New information elements: <urcInfoId> 80, 84 – 87, 50, 2100, 4300, 4400 All information elements are delivered within the "^SIS" URC and the responses of the new AT^SISE command. The value 3 of the "^SIS" URC parameter <urcCause> known from earlier TC65 releases has been removed.
DNS configuration	This release fixes problems observed earlier when automatic DNS configuration was used in a GPRS network which did not support or was not correctly configured for automatic DNS address assignment. In such a case, when the TCP/IP stack is not able to resolve fully qualified domain names, TC65 will now deliver a warning message.

2.2.1 Internet Service AT Commands not Compatible with Earlier Releases

Due to the revision of the Internet Service AT commands several functions have been enhanced or changed and are no longer compatible with recent releases. Below please find a summary of the features you are required to change in an existing host application after upgrading to TC65 02.000.

AT command / feature	TC65 02.000	Earlier releases
Closing an upload service with AT^SISC	The new end-of-data flag set within AT^SISW eliminates the need for the former <closeMode> parameter of AT^SISC. With release 02.000 <closeMode> has been removed. The end-of-data flag mechanism notifies the service that no further upstream data follow. As a result, the running protocol is completed and the service enters the service state “Closing”, then “Down”. AT^SISC now always stops the service immediately. This means, if entered while an upload is ongoing AT^SISC will cut off the transfer. **IMPORTANT:** The improved close mechanism requires that existing host applications be adapted.	The AT^SISC parameter <closeMode> determines the close mechanism, either graceful or immediate.
Service state “Down”	After finishing the protocol each service remains in state “Down” until AT^SISC is called.	After finishing the protocol the service switches automatically to state “Allocated”. AT^SISC must be called, too.
AT^SISR=x,0	Peek operator Queries number of received bytes in internal buffers	Returns ERROR
AT^SISW=x,0	Queries number of unacknowledged bytes at the TCP/IP layer.	Returns ERROR
Read / write errors	AT^SISR/AT^SISW write commands may return an error indicating a major error event that switches the service off.	AT^SISR/AT^SISW do not return any errors while the service is running.
AT^SISW? read command	Returns a 3rd parameter: <unackData>	Returns two parameters

AT command / feature	TC65 02.000	Earlier releases
Upload services	The complete AT^SISW command cycle may take a little more time because the socket operation is now included to the command flow.	---
FTP service	Size parameter no longer supported in URL string as end-of-data flag is sufficient.	Size parameter in URL string supported.
"^SIS" URC	<urcCause> has 2 values. <urcCause> = 3 has been removed. <urcInfoID> 107 related to FTP size has been removed. <urcInfoId> 48, 49 has been changed	<urcCause> has 3 values. <urcInfoID> 107 related to FTP size is supported.

3 Known Issues

AT command / feature	Brief description
IDE	The IDE Sun Java Studio Mobility 6 2004Q3 is no longer supported for TC65.
Changing the bit rate of the Java CommConnection interface	Before using the setBaudRate method ensure that there is no ongoing data transmission. Also, it is necessary to wait at least 10s between closing and reopening the CommConnection. Please note that System.out also counts as data output when used on the same serial interface as the CommConnection.
File.copy() method	The File.copy() method works correctly only if the file size is not greater than 65534 bytes. Workaround: For files equal or greater than 65535 bytes please use the FileConnection interface to implement your own copy method.
AT^SJNET	The string parameters of the AT^SJNET read and write command (<bearer service>, <entry point>, <login>, <password> and <dns>) are currently coded in ASCII character set only. The settings of AT+CSCS specified in [1] are not applicable.
Using IP services over Java and embedded TCP/P stack	If the Java IP networking interfaces and the embedded TCP/IP stack of TC65 are used together the following rule shall be applied: To start and stop the bearer always use the IP service AT commands specified in [1], such as AT^SISO, AT^SISC, AT^SICO and AT^SICC instead of the Java method connector.open. Otherwise, invalid values of "inactTO" may considerably delay the shutdown time of the bearer. Note: If used separately, Java IP networking interfaces and embedded TCP/IP stack have no restrictions on using the bearer.
AT^SHOM	The indication of the homezone does not work. AT^SHOM returns always 0 (ME is out of the homezone).
Fax	Proper functioning of fax transmission cannot be guaranteed under all circumstances.
URC “^SMGO”	When the SMS memory is full or a short message was deleted, the SMS memory status is properly indicated if queried manually (by using the AT^SMGO? read command) but the URC “^SMGO” fails to appear.

AT command / feature	Brief description
SMS storage	The “ME” storage for short messages does not work precisely when heavy strain is put on the Virtual Java Machine at the same time. Workaround: It is recommended to activate only the SIM storage by setting AT+CPMS=”SM”,”SM”,”SM” or to configure the application to route all short messages directly to the Flash File System.
Unsolicited result codes “^SISR: x,2”, “^SISW: x,2”	At the end of an Internet session, a download job may sometimes return the “SISW: x,2” URC instead of the expected “^SISR: x,2” URC, or vice versa, an upload job may return “^SISR: x,2” instead of “^SISW: x,2”. Both URCs are correct in either case – they notify that data transfer has completed and that the service can be closed with AT^SISC. Example: The FTP put service (“ftpput://…”) returns the URC “^SISR: x,2” instead of “^SISW: x,2” if used with mode=”d” to delete a given element name on the FTP server. For greater flexibility, to cover all cases, we recommend that the host application shall be parsing for the URC “^SIS*: x,2” rather than for the full URC text. (x = <srvProfileId>, i.e. ID of the Internet service profile).
Firmware update over USB	If the USB interface is used to update the TC65 firmware, problems may be encountered due to the latencies of USB device detection, for example if the USB host is slow (Clock<1GHz) or the operating system supports only old USB drivers (Windows 2000). In extreme cases the firmware download may be aborted. As a workaround, you can try to restart the update procedure any time. The best approach, however, is using an appropriate USB host, e.g. a PC running Windows XP and fast enough. For further detail on how to update the firmware see the AT^SFDL command in [1] and the chapter “Generic Firmware Update” of the Application Note 16 “Firmware Update”.
AT+IPR=0 Autobauding	Autobauding at 230400 bps requires leaving at least a 1-bit gap between the prefix “AT” (or “at”) and the following character of the command string. Autobauding currently does not support 480600 bps. Therefore, if the module has autobauding enabled, 230400 bps is the maximum bit rate the host application may be configured to.

AT command / feature	Brief description
AT&V	If executed on the USB interface, AT&V fails to indicate the lines +CBST, +CRLP and +FCLASS. Workaround: On the USB interface, the missing values can be queried using the read commands AT+CRLP?, AT+CBST? and AT+FCLASS?
FD phonebook	Do not use <storage>=FD phonebook (SIM fixed dialing numbers) with an empty dial <number> string. If there are any empty dial <number> strings in the phonebook, delete them.
CLIR settings via star-hash network command	The star-hash network command for configuring CLIR does not accept the international number prefix “+”. Instead, please type “00”, i.e. ATD*31#00<number> instead of ATD*31#+<number>".
AT+CGACT	Trying to deactivate two PDP contexts with AT+CGACT=0,1,2 is successful only if both PDP contexts are really activated. If only the 2nd PDP is context is active the AT+CGACT command detects that the 1st PDP context is already inactive and returns OK without deactivating the second PDP context.
AT^SIND=”vmwait1”,2 AT^SIND=”vmwait2”,2 Voice message waiting indication	With AT^SIND=”vmwait1”,2 and AT^SIND=”vmwait2”,2 it should be possible to read if there are voice mails waiting in the mailboxes of the subscriber lines 1 or 2. However, the command currently returns invalid values. Workaround: To poll the current status use the AT+CRSM command as shown in the following example: AT+CRSM=176,28433,0,0,1 +CRSM: 144,0,5A # SIM file 6F11 indicates a waiting mail OK The first nibble of the byte indicates the status of line 1 and second nibble of the byte indicates the status of line 2. If a message is waiting the nibble is 0x0A. If no message is waiting the nibble is 0x05.
AT^SRTC	If any non-zero melody number and any non-zero volume level are set for the ringing alerts, the invocation of ringing alert tests (using the AT^SRTC executive command) during a voice call results always in playing the melody #1."

AT command / feature	Brief description
AT^SAIC AT^SNFS	Using the AT^SAIC write command to switch back and forth between mic/speaker pairs at both analog interfaces is not supported during a call. Workaround: To select another audio device during a call, please use the AT^SNFS command instead of AT^SAIC. This requires that you have appropriate combinations defined with AT^SAIC and AT^SNFS, especially when the audio devices are connected to interfaces other than those assumed by default. The settings can be sent each time when initializing TC65 after power-up. An example of how to proceed can be found in [1], chapter AT^SNFS.