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1 Introduction

These Release Notes contain important product information on the

Siemens HC25 Release 02.050.

HC25 is a Siemens wireless module designed to offer Tri-Band UMTS and Quad-Band GSM capability on the same device. The benefit is that the HC25 supports 3.6 Mbit/s HSDPA performance in a UMTS network and also all common mobile connectivity features like voice, short messages, GPRS and EGPRS.

The document briefly summarizes all new features and major changes which have been added since Release 01.200. A list of known problems and other important product information can be found as well.

1.1 Related Documents

- [1] HC25 AT Command Command Set, v02.050
- [2] HC25 Hardware Interface Description, v02.050
- [3] User's Guide: Getting Started with HC25, v04
- [4] Application Note 02: Audio Interface Design for HC25/HC28 Applications, v03
- [5] Application Note 16: Updating HC25 Firmware, v03
- [6] Readme: Updating HC25 Release 1 to HC25 Release, v02
- [7] Application Note 22: Using TTY / CTM Equipment with HC25/HC28, v02
- [8] Application Note 26: Power Supply for Wireless Applications, v04
- [9] Application Note 37: GPS Antenna Integration for HC25, v02
- [10] Application Note 39: USB Interface Description, v03
- [11] Application Note 40: Thermal Solutions for HC25 Applications, v03
- [12] Application Note 43: Customizing HC25 Applications, v02
- [13] Multiplexer User's Guide for HC25/HC28, v02
- [14] Multiplexer Driver Installation Guide for HC25/HC28, v01
- [15] Remote SAT User's Guide for HC25/HC28, v03

2 Updating HC25 Firmware and HC25 USB Drivers

AT command / feature	Brief description
HC25 firmware	<p>The HC25 02.050 firmware is available in two versions:</p> <ol style="list-style-type: none"><li data-bbox="539 477 1410 577">1. A special tool is intended to upgrade HC25 modules from any release between 01.000 and 01.200 to release 02.050. Detailed guidelines for using the tool can be found in [6].<li data-bbox="539 607 1410 779">2. The Windows executable “gwinswup_HC25_02.050.exe” and the binary file “HC25_02.050.usf” are not permitted for HC25 modules up to release 1.200. Both files are intended only for installation on HC25 modules as of 01.7xx. Detailed installation guidelines can be found in [5]. <p>Please also note that downloading an older firmware version or the firmware of another product will cause unrecoverable damage to the HC25 module and is not permitted.</p>
HC25 USB driver package	<p>All USB drivers provided with HC25 are WHQL tested and signed by Microsoft Windows Hardware Compatibility Publisher to verify their compatibility with Microsoft® Windows XP™ and Microsoft® Windows Vista™.</p> <p>For some new features listed in Chapter 3, such as Multiplex mode and a new version of the Siemens HC25 Connection Manager it is necessary to install the new driver package delivered with HC25 02.050.</p> <p>Detailed guidelines for installing and updating the drivers can be found in [3].</p>

3 New Features

AT command / feature	Brief description
Multiple interface support	<p>The HC25 module now comes with a full-featured asynchronous serial interface providing the lines TXD0, RXD0, RTS0, CTS0, DTR0, DSR0 and RING0.</p> <p>This gives you the flexibility to operate HC25 either through the asynchronous serial interface (ASC0) or as USB composite device comprising two virtual COM ports and a virtual Ethernet adapter.</p> <p>In addition, HC25 supports the Multiplexer Protocol according to GSM 07.10 and 3G TS 27.010. Multiplex mode can be enabled either on the ASC0 or the USB modem interface.</p> <p>The following AT commands have been added or enhanced to select all appropriate interface configurations:</p> <ul style="list-style-type: none"> • AT^SUSB “Startup” mode: Parameter <start> includes the additional option “None” to enable the ASC0 interface and disable access to the USB interface. • AT^SCFG “URC/Dstlfc”: Parameter <udi> now provides the values “mdm” and “app” to choose which interface to use for the presentation of URCs. The former values “usb0-mdm” and “usb0-app” are deprecated but still included for compatibility with other products. • AT+CMUX: New command used to start the Multiplex mode. • AT\Q3: New command to set hardware flow control on ASC0. • AT+IPR: New command to set fixed bit rate 115200 bps on ASC0. <p>A detailed description of all interfaces is provided in [1] and [3].</p>
A-GPS, E-911	<p>HC25 is capable of Mobile Based Control Plane A-GPS to provide E-911 location information in GSM and UMTS networks.</p>
GPS NMEA messages	<p>The on-board GPS receiver also supports the NMEA protocol. NMEA messages will be output on the third Multiplex channel. To control the NMEA functionality HC25 02.050 introduces the commands AT^SGPSS and AT^SGPSC.</p> <p>Precondition for using NMEA data is that Multiplex mode is activated. The third Multiplex channel is dedicated to NMEA output. The GPS related commands can be executed either on the first Multiplex channel (Modem interface) or the second Multiplex channel (Application interface, recommended).</p>

AT command / feature	Brief description
Siemens HC25 Connection Manager	<p>The Siemens HC25 Connection Manager has been improved:</p> <ul style="list-style-type: none"> • An additional SIM property page enables the user to enter the SIM PIN. • For operation on Windows Vista, the user is no longer required to log on as administrator (administrator privileges are only necessary for driver installation).
AT commands for customizing HC25 applications	<p>If you wish to customize the module's product and manufacturer names displayed to your end users on the user interface of your application, during the driver installation process, by the Windows Device Manager and on the HC25 Connection Manager user interface, you can modify the required files and strings.</p> <p>For this purpose, HC25 02.050 introduces the following new features:</p> <ul style="list-style-type: none"> • Parameters "Ident/Manufacturer" and "Ident/Product" of the AT^SCFG command for modifying the manufacturer and product name displayed by the identification commands ATI, AT+GMM, AT+CGMM, AT+GMI and AT+CGMI. • Parameters "MdmNet/DD", "Mdm/DD" and "MS/DD" of the AT^SUSB command for modifying the relevant USB descriptors of all virtual HC25 USB devices. <p>Guidelines for changing the product information and developing a customized installation utility based on InstallShield 2008 can be found in [12].</p> <p>Note that WHQL testing and Microsoft Windows Hardware Compatibility Publisher signatures are valid only for the supplied Siemens drivers and are no longer applicable after customizing.</p>
AT+CRSM	<p>The AT+CRSM command includes the additional optional parameter <pathID> that can be used to specify the directory path of an elementary file on a UICC in hexadecimal format.</p>
AT^SCFG, parameter "Call/ECC"	<p>Intended for SIM cards without ECC field, the new parameter "Call/ECC" can be used to select emergency numbers in addition to the commonly used numbers 112 and 911.</p>
AT^SCFG, parameter "MEopMode/RingOnData"	<p>"MEopMode/RingOnData" is a new AT^SCFG parameter that specifies whether or not to use the RING line on the ASC0 interface to wake up the host application from power saving when the RTS line is inactive, and the module needs to send data (URCs, IP packets) to the host application. If the parameter is enabled, the RING line will, in such case, be activated once for 100ms.</p> <p>The parameter is effective only when the Modem interface is assigned to ASC0 or when Multiplex mode is enabled on ASC0.</p>

AT command / feature	Brief description
<p>AT^SCFG, parameter "Radio/Band"</p>	<p>HC25 02.050 introduces a greatly improved band selection procedure. The new implementation is based on a single band group that includes all bands the module is capable of:</p> <ul style="list-style-type: none"> • GSM 900 • GSM 1800 • GSM 850 • GSM 1900 • WCDMA 2100 (BC1) • WCDMA 1900 (BC2) • WCDMA 850 (BC5) <p>By eliminating the former allocation to different band groups, this solution allows the subscriber to easily find a suitable network in any country around the world, no matter which frequency bands, band combinations and access technologies are present in a particular area.</p> <p>By factory default, all frequency bands are allowed, meaning that the "Radio/Band" parameter <rba> of AT^SCFG is set to 127. As AT+COPS=0 (automatic mode) is the module's power-up default, the subscriber may take advantage of a full-featured automatic network selection each time when trying to register.</p> <p>Nevertheless, you may wish to restrict the allowed bands to a specific band or band combination. This may be useful to eliminate unnecessary bands, in particular to speed up the network search and reduce the power consumption. In such case, simply use the "Radio/Band" parameter <rba> of AT^SCFG. By adding the optional parameter <rbe> you can choose whether the allowed band configuration shall take effect immediately or after restarting the module.</p> <p>The new band selection implementation deprecates the "Radio/Band/Group" feature of AT^SCFG and the AT^SNWS command known from HC25 Release 1. Both commands are still supported for backward compatibility, but should no longer be used.</p> <p>Note: Please note that there are no test command and read command responses (AT^SCFG=?, AT^SCFG?) implemented for "Radio/Band". To query the current status please use the write command without giving a value: AT^SCFG="Radio/Band".</p>
<p>AT^SCFG, parameter "Radio/ NWSM"</p>	<p>HC25 now supports a specific network selection mode in order to comply with requirements of the US operator AT&T. To comply with these requirements the application controlling the HC25 module will have to send the AT command AT^SCFG="Radio/NWSM", "1" during the initialization phase.</p>

AT command / feature	Brief description
Remote SAT AT^SSTA?	The read command AT^SSTA? has been extended. The new parameter <AppMode> shows which type of SIM application is currently running: either 2G application (GSM SAT) or 3G application (USAT).
CPHS voice mail phonebook "VM"	<p>HC25 now supports a new phonebook type referred to as "VM". The "VM" phonebook contains the voice mailbox number(s) stored on a CPHS compliant SIM (one for Line 1 and, if subscribed, one for Line 2).</p> <p>The "VM" phonebook is accessible using AT+CPBS, AT+CPBR and AT+CPBW. As the voice mailbox number is usually determined by the service provider, write access to the "VM" phonebook (AT+CPBW) should be disabled for end users.</p> <p>If a non-CPHS SIM is inserted the "VM" phonebook is not available.</p>
AT^SHUP:	<p>The new AT^SHUP command disconnects a call and, in addition, sends a specific release cause message to the network for being forwarded to the remote party.</p> <p>The feature can be used to reject an incoming call, terminate an active or held call, end all calls at a time, or disconnect a party from a telephone conference.</p> <p>The call release cause can be freely chosen from a list of 8 response types. It depends on the network whether or not a delivered release cause is forwarded to the remote subscriber.</p>
AT^SLCC	<p>The new AT^SLCC command is an extension of the standard command AT+CLCC.</p> <p>The list of current calls delivered by AT^SLCC may contain further call state information than the CLCC list (call terminated, call dropped). In addition, the AT^SLCC command can be used to activate URCs to notify the user each time when a call state has changed.</p>

4 Improved Features

AT command / feature	Brief description
UCS2	The USC2 character set is now fully supported.
SMS Text mode	SMS Text mode is now fully supported.
AT+CMSS	The AT+CMSS write command now correctly sends short messages from the <mem2> mass storage as specified in [1].
Remote SAT	Unexpected "^SSTN: 254" URCs will no longer be issued.
Hands-free operation	The audio performance has been improved particularly for hands-free operation.
+++ escape sequence, ATO	The +++ escape sequence and the ATO command can now be used during packet switched data connections to switch back and forth between command mode and online mode.
DTR line, AT&D	The AT&D1 command is now fully functional and is also applicable to packet switched data connections. As a result, the DTR line can now be used during packet switched data connections to switch from online mode to command mode.
AT+CGATT=0	Using the AT+CGATT=0 command (GPRS detach) in GSM/GPRS networks during a circuit switched connection (voice or data) will no longer block the AT interface.
Concurrent use of Siemens HC25 Wireless Adapter and virtual USB interfaces	This release fixes the problems observed with earlier HC25 releases, when making a voice call on the Modem or Application interface at the same time when transferring data over the Siemens HC25 Wireless Adapter.
"LD", "MC", "DC", "RC" phonebooks	"LD", "MC", "DC", "RC" phonebooks are now fully functional.
Call waiting	If there is a voice call between two subscribers (A and B) while another call is already waiting on the A subscriber line, the A subscriber no longer answers automatically the waiting call when subscriber B hangs up.

AT command / feature	Brief description
AT+CLCK, Call barring	The AT+CLCK command will now provide correct responses to all activation, deactivation or status query commands related to call barring.
AT+CREG	<ol style="list-style-type: none">1. The AT+CREG command will now correctly indicate <stat>=0 (not registered, not searching) if PIN authentication has not yet been done or if no SIM/UICC is inserted at2. When the network registration state changes, the values of the unsolicited result codes "+CREG: 0" (not registered), "+CREG: 2" (searching) and "+CREG: 5 (roaming) will now be properly updated.
AT^SIND, "psinfo" indicator	The "psinfo" indicator used to report the availability and the attach status of packet switched services indicates now correct values.
AT+CUUSD	If the <dc> parameter is omitted, the AT+CUUSD write command now correctly uses the <dc> default value "15".
Spikes at PWR_IND and VEXT	The problem of periodic spikes which occurred at the PWR_IND and VEXT lines when the module was powered down at high temperature has been fixed.

5 Known Issues

AT command / feature	Brief description
Fax	Fax transmission cannot be guaranteed under all circumstances.
AT command interpreter	<p>As specified in [1] and [3] the Application interface and the Modem interface are handled by the same AT command interpreter, meaning that the HC25 module executes one AT command at a time.</p> <p>Further to the specifications provided in [1] and [3], HC25 Release 02.050 requires special care: When entering AT commands on the Application interface and the Modem interface at the same time ensure that the module has already processed the line terminating character (see AT53) of an AT command entered on the one interface, before you start to send an AT command on the other interface.</p> <p>Otherwise, AT command strings sent simultaneously on both interfaces might be mixed up, thereby causing an unexpected response to appear, for example "ERROR" or "NO CARRIER".</p>
URCs related to data calls	<ol style="list-style-type: none"> 1. The data call related URCs "RING/CRING" and "NO CARRIER" may appear on the modem port even if the modem port is not idle. This means that these URCs may be output within the echo or response of a running AT command on the modem port but each on its own line. 2. If a data call is terminated by the remote party, the virtual DCD line of the HC25 is deactivated after the "NO CARRIER" result code has been sent via the network. As a result, the "NO CARRIER" string is received on the HC25 module as part of the data stream. 3. If a mobile originated data connection is rejected by the remote party, the dialing command at the modem port is correctly terminated by the "NO CARRIER" final result code. But there is no "NO CARRIER" URC sent on the application port.
ATX CONNECT result code format	Dial tone and busy detection cannot be suppressed by ATX. The command can be used only to select whether to use the result code format "CONNECT" or "CONNECT <text>".
ATS7	The ATS7 command is not functional.

AT command / feature	Brief description
Line Feed	<p>According to [1], section 1.5 "AT Command Syntax", AT commands shall be terminated with <CR>.</p> <p>If nevertheless your application is designed such that AT commands are terminated with <CR><LF> characters please consider that HC25 currently handles the <LF> character as user break instead of ignoring it. As a result, AT commands which support a user break (for example ATD) may be aborted.</p>
AT+COPS=?, AT^SOPS=?	<p>If the module is registered to a UMTS network the AT+COPS=? and the AT^SOPS=? command sometimes return an empty operator list. The error may occur when the command is executed in parallel to a data transfer via NDIS (Connection Manager) or PPP (Dial-up Network) or immediately after a short message has been received.</p> <p>Workaround: Please repeat the AT+COPS or AT^SOPS command for example approx. 3 minutes after data packets were transferred, or approx. 1 second after receiving a short message.</p>
AT^SHUP	<p>If there is a voice call and a data call in parallel (one of them waiting) the AT^SHUP command does not end both calls at a time as expected with AT^SHUP=<cause>,0 or AT^SHUP=<cause>. Instead, only the data call will be released.</p> <p>Workaround: To end both the voice and data call, please add the call IDs of each call: AT^SHUP=<cause>[, <cn>]. Please note that <cn> is the call ID obtained with AT+CLCC.</p>
Remote SAT, SIM profile	<p>When using a dual SIM take care not to change the SIM profile during a call.</p>
Remote SAT, call setup	<p>When executing a proactive call setup command (i.e. AT^SSTR=16,0) the module will send the expected response ^SSTR: 16,0,"" until after the remote party has accepted or rejected the call.</p>
Remote SAT, user break	<p>When a SAT command is aborted with user break the command is expected to return only ERROR.</p> <p>However, if a network related SAT command (e.g. AT^SSTR=18 for USSD) is aborted, it is possible that the ERROR message and a response to the command AT^SSTR command are output on the same command line without separator. For example, instead of ERROR the command returns ERROR^SSTR: 18,0,""</p>

AT command / feature	Brief description
AT+CCUG	Proper functioning of the closed user group configuration cannot be guaranteed under all circumstances. Sometimes the module may return "Busy" instead of proceeding the call.
Mobile terminated circuit switched data calls in GSM mode	If in GSM mode a packet switched connection is active on the Modem port, an incoming circuit switched data call is not indicated by RING on the Application port but rejected internally.
AT^SMONI, AT^SMONP	<p>The "EC/n0" value (Carrier to noise ratio of the serving cell in dB) displayed in the responses to AT^SMONI and AT^SMONP is not correct.</p> <p>Workaround: To get the correct value please divide the indicated value by (-2). Example: Displayed value 27 --> correct "Ec/Io" is -13.5dB. Please see 3GPP 25.133, section 9.1.2.3 for the mapping from "EC/n0" to "Ec/Io".</p>
AT+CGDATA AT+CGACT ATD*99***<cid>#	It is not possible to enter data mode for a context which has been activated by AT+CGACT. Therefore, use AT+CGDATA or ATD*99***<cid># only if the context has not yet been activated.
AT+CBST	If AT+CBST is configured for V.34 at 14400 bps, but the network does not support this data rate for circuit switched connections, the HC25 fails to fall back to the next lower data rate 9600 bps. Likewise, autobauding (<speed> parameter of AT+CBST is 0) does not work correctly if the network does not accept V.34 at 14400 bps.
AT+CNMI, <ds> parameter	Value 2 of the SMS status report parameter <ds> is not supported).
AT+CSCB	<p>Removing a cell broadcast channel range works well if the range to be removed is lower or greater than a set range. However, if the range to be removed is exactly the same as a set range, the channels are not correctly removed.</p> <p>Workaround: To delete an existing range you are required to decrement by "1" the value of the low channel counter and to increment by "1" the value of the upper counter. For example, to delete the range "100 - 110" please enter the "99 - 111".</p>
AT^SCFG parameters "Call/SyncPPP" and "Call/UDI"	The two parameters "Call/SyncPPP" and "Call/UDI" listed by the AT^SCFG read and test command are not supported and should not be used.

AT command / feature	Brief description
URCs related to voltage and temperature conditions	<p>Each time a voltage or temperature change requires a URC to be generated the module is expected to send one of the standard URCs specified in [1] and [2]. With release 02.050 however, the module will send the additional URC “^SHUTDOWN: <n>”, where <n> is a serial number from 1 to 8.</p> <p>The additional URCs with serial numbers have the same meaning as the standard URCs and are redundant. The following list shows the additional URCs and the equivalent standard URCs:</p> <p>URC “SHUTDOWN: 1” = URC “SCTM_B: -2” URC “SHUTDOWN: 2” = URC “SCTM_B: -1” URC “SHUTDOWN: 3” = URC “SCTM_B: 0” URC “SHUTDOWN: 4” = URC “SCTM_B: 1” URC “SHUTDOWN: 5” = URC “SCTM_B: 2” URC “SHUTDOWN: 6” = URC “SBC: Undervoltage” URC “SHUTDOWN: 7” = URC “SBC: Overvoltage Warning” URC “SHUTDOWN: 8” = URC “SBC: Overvoltage Shutdown”</p>