

Telit

GM862-PCS

GM862-PYTHON

GM862-QUAD

GM862-QUAD-PY

TRIZIUM

TRIZIUM-GPS

GE863-QUAD

GE863-PY

AT Commands Description

Telit Communications S.p.A.

This document is relating to the following products:

| | |
|--------------------|------------|
| GM862-PCS | 3990250643 |
| GM862-PYTHON | 3990250647 |
| GM862-QUAD | 3990250655 |
| GM862-QUAD-PY | 3990250656 |
| TRIZIUM | 3990250646 |
| TRIZIUM-GPS | 3990250663 |
| GE863-QUAD (Pb) | 3990250664 |
| GE863-PY (Pb) | 3990250665 |
| GE863-QUAD (LF) | 3990250653 |
| GE863-PY (LF) | 3990250654 |
| GE863-PY Interface | 3990250669 |

INDEX

| | | |
|----------|--|------------|
| 1 | INTRODUCTION | 4 |
| 1.1 | Scope of document | 4 |
| 1.2 | Abbreviation symbols | 4 |
| 2 | AT COMMAND | 5 |
| 2.1 | Definitions..... | 5 |
| 2.2 | AT Command Syntax | 6 |
| 2.2.1 | Command lines | 6 |
| 2.2.2 | Information responses and result codes..... | 9 |
| 2.2.3 | Command Response Timeout..... | 10 |
| 2.2.4 | Command issuing timing | 12 |
| 2.2.5 | Factory Profile and parameters stored in the profiles..... | 12 |
| 2.2.6 | AT Command availability table | 14 |
| 2.3 | Backward compatibility..... | 19 |
| 2.4 | Repeating a command line | 20 |
| 2.4.1 | Last command automatic repetition..... | 20 |
| 2.5 | Hayes Compliant AT Commands..... | 21 |
| 2.5.1 | Generic Modem Control..... | 21 |
| 2.5.2 | DTE - modem interface control..... | 28 |
| 2.5.3 | Call Control | 36 |
| 2.5.4 | Modulation control..... | 40 |
| 2.5.5 | Compression control..... | 41 |
| 2.5.6 | Break control..... | 42 |
| 2.5.7 | S parameters | 43 |
| 2.6 | ETSI GSM 07.07 AT Commands | 49 |
| 2.6.1 | General | 49 |
| 2.6.2 | Call control | 51 |
| 2.6.3 | Network service handling..... | 55 |
| 2.6.4 | Mobile Equipment control | 72 |
| 2.6.5 | Mobile equipment errors | 88 |
| 2.6.6 | Voice Control (TIA IS-101)..... | 89 |
| 2.6.7 | Commands For GPRS..... | 90 |
| 2.6.8 | Commands For Battery Charger..... | 98 |
| 2.7 | ETSI GSM 07.05 AT Commands for SMS and CB services | 99 |
| 2.7.1 | General configuration | 99 |
| 2.7.2 | Message configuration..... | 105 |
| 2.7.3 | Message receiving and reading..... | 106 |
| 2.7.4 | Message sending and writing | 113 |
| 2.8 | FAX Class 1 AT Commands | 117 |
| 2.8.1 | General configuration | 117 |
| 2.8.2 | Transmission/Reception control | 118 |
| 2.8.3 | Serial port control..... | 120 |
| 2.9 | Custom AT Commands | 122 |
| 2.9.1 | General configuration AT commands | 122 |
| 2.9.2 | FTP AT commands | 144 |
| 2.9.3 | Enhanced Easy GPRS® Extension AT commands | 148 |
| 2.9.4 | Easy Camera® management AT commands | 165 |
| 2.9.5 | Email management AT commands..... | 171 |
| 2.9.6 | Easy Scan® Extension AT commands..... | 177 |
| 2.9.7 | Jammed Detect & Report AT commands..... | 182 |
| 2.9.8 | Easy Script® Extension – Python interpreter, AT commands | 184 |
| 2.9.9 | GPS Application AT commands | 189 |
| 3 | DOCUMENT CHANGE LOG..... | 196 |

1 INTRODUCTION

1.1 Scope of document

To describe the AT commands implemented on the Tri Band **Telit GM862-PCS, GM862-PYTHON**, Quad Band **Telit GM862-QUAD, GM862-QUAD-PY, TRIZIUM** and **GE863-QUAD/QUAD-PY** wireless modules.

1.2 Abbreviation symbols

| | |
|-------|--|
| ARFCN | Absolute Radio Frequency Channel Number |
| AT | Attention command |
| CBM | Cell Broadcast Message |
| CBS | Cell Broadcast Service |
| CCM | Current Call Meter |
| CLIR | Calling Line Identification Restriction |
| CTS | Clear To Send |
| CUG | Closed User Group |
| DCD | Data Carrier Detect |
| DCE | Data Communication Equipment |
| DCS | Digital Cellular System |
| DNS | Domain Name System Server |
| DSR | Data Set Ready |
| DTE | Data Terminal Equipment |
| DTMF | Dual Tone Multi Frequency |
| DTR | Data Terminal Ready |
| GMT | Greenwich Mean Time |
| GPRS | Global Packet Radio Service |
| GPS | Global Positioning System |
| GSM | Global System Mobile |
| HDLC | High Level Data Link Control |
| IMEI | International Mobile Equipment Identity |
| IMSI | International Mobile Subscriber Identity |
| IP | Internet Protocol |
| IRA | International Reference Alphabet |
| IWF | Interworking Function |
| MO | Mobile Originated |
| MT | Mobile Terminal |
| NVM | Non Volatile Memory |
| PDP | Packet Data Protocol |
| PDU | Packet Data Unit |
| PIN | Personal Identification Number |
| PPP | Point to Point Protocol |
| PUK | Pin Unblocking Code |
| RLP | Radio Link Protocol |
| RTS | Request To Send |
| SCA | Service Centre Address |
| SMS | Short Message Service |
| SMSC | Short Message Service Centre |
| SMTP | Simple Mail Transport Protocol |

| | |
|------|---|
| TA | Terminal Adapter |
| TCP | Transmission Control Protocol |
| TE | Terminal Equipment |
| UDP | User Datagram Protocol |
| USSD | Unstructured Supplementary Service Data |
| UTC | Coordinated Universal Time |

2 AT Command

The Telit wireless module family can be driven via the serial interface using the standard AT commands¹. The Telit wireless module family is compliant with:

1. Hayes standard AT command set, in order to maintain the compatibility with existing SW programs.
2. ETSI GSM 07.07 specific AT command and GPRS specific commands.
3. ETSI GSM 07.05 specific AT commands for SMS (Short Message Service) and CBS (Cell Broadcast Service)
4. FAX Class 1 compatible commands

Moreover Telit wireless module family supports also Telit proprietary AT commands for special purposes.

In the following is described how to use the AT commands with the Telit wireless module family.

2.1 Definitions

The following syntactical definitions apply:

<CR> Carriage return character, is the command line and result code terminator character, which value, in decimal ASCII between 0 and 255, is specified within parameter S3.

The default value is 13.

<LF> Linefeed character, is the character recognised as line feed character. Its value, in decimal ASCII between 0 and 255, is specified within parameter S4. The default value is 10.

The line feed character is output after carriage return character if verbose result codes are used (V1 option used) otherwise, if numeric format result codes are used (V0 option used) it will not appear in the result codes.

<...> Name enclosed in angle brackets is a syntactical element. They do not appear in the command line.

[...] Optional sub-parameter of a command or an optional part of TA information response is enclosed in square brackets. Brackets themselves do not appear in the command line. When sub-parameter is not given in AT commands which have a Read command, new value equals to its previous value. In AT commands which do not store the values of any of their sub-parameters, and so have not a Read command, which are called

¹ The AT is an ATTENTION command and is used as a prefix to other parameters in a string. The AT command combined with other parameters can be set up in the communications package or typed in manually as a command line instruction.

action type commands, action should be done on the basis of the recommended default setting of the sub-parameter.

2.2 AT Command Syntax

The syntax rules followed by Telit implementation of both Hayes AT commands, GSM commands and FAX commands are very similar to those of standard basic and extended AT commands.

There are two types of command:

- Parameter type commands. This type of commands may be “set” (to store a value or values for later use), “read” (to determine the current value or values stored), or “tested” (to determine ranges of values supported). Each of them has a test command (trailing =?) to give information about the type of its sub-parameters; they also have a Read command (trailing?) to check the current values of sub-parameters.
- Action type commands. This type of command may be “executed” (to invoke a particular function of the equipment, which generally involves more than the simple storage of a value for later use), or “tested” (to determine, if sub-parameters are associated with the action, the ranges of sub-parameters values that are supported). They do not store the values of any of their possible sub-parameters. If the command has no sub-parameters, issuing the correspondent test command (trailing =?) raises the answer “ERROR”. If the command has no sub-parameters, issuing the Read command (trailing?) causes the command to be executed.

An enhanced test command (trailing =??) has been introduced to maintain backward compatibility for those commands whose sub-parameters changed the range of possible values from version to version.

2.2.1 Command lines

A command line is made up of three elements: the prefix, the body and the termination character.

The command line prefix consists of the characters “AT” or “at”, or, to repeat the execution of the previous command line, the characters “A/” or “a/”.

The termination character may be selected by a user option (parameter S3), the default being <CR>.

The basic structures of the command line are:

- ATCMD1<CR> where AT is the command line prefix, CMD1 is the body of a basic command (nb: the name of the command never begins with the character “+”) and CR is the command line terminator character
- ATCMD2=10<CR> where 10 is a sub-parameter
- AT+CMD1;+CMD2=, ,10<CR> These are two examples of extended commands (nb: the name of the command always begins with the character “+”). They are delimited with semicolon. In the second command the sub-parameter is omitted.
- +CMD1?<CR> This is a Read command for checking current sub-parameter values
- +CMD1=?<CR> This is a test command for checking possible sub-parameter values

These commands might be performed in a single command line as shown below:

```
ATCMD1 CMD2=10+CMD1;+CMD2=, ,10;+CMD1?;+CMD1=?<CR>
```

anyway it is always preferable to separate into different command lines the basic commands and the extended commands; furthermore it is suggested to avoid placing several action commands in the same command line, because if one of them fails, then an error message is received but it is not possible to argue which one of them has failed the execution.

If command `v1` is enabled (verbose responses codes) and all commands in a command line has been performed successfully, result code `<CR><LF>OK<CR><LF>` is sent from the TA to the TE, if sub parameter values of a command are not accepted by the TA or command itself is invalid, or command cannot be performed for some reason, result code `<CR><LF>ERROR<CR><LF>` is sent and no subsequent commands in the command line are processed.

If command `v0` is enabled (numeric responses codes), and all commands in a command line has been performed successfully, result code `0<CR>` is sent from the TA to the TE, if sub-parameter values of a command are not accepted by the TA or command itself is invalid, or command cannot be performed for some reason, result code `4<CR>` and no subsequent commands in the command line are processed.

In case of errors depending on ME operation, ERROR (or 4) response may be replaced by `+CME ERROR: <err>` or `+CMS ERROR: <err>`.

NOTE:

The command line buffer accepts a maximum of 80 characters. If this number is exceeded none of the commands will be executed and TA returns ERROR.

2.2.1.1 +CME ERROR: - ME error result code

This is NOT a command, it is the error response to `+Cxxx` GSM 07.07 commands.

Syntax: `AT+CME ERROR:<err>`

Parameter: `<err>` - error code can be either numeric or verbose.
 (Values in parentheses are GSM 04.08 cause codes)

`<err>` values:

| Numeric Format | Verbose Format |
|----------------|-----------------------------------|
| 0 | phone failure |
| 1 | No connection to phone |
| 2 | phone-adaptor link reserved |
| 3 | operation not allowed |
| 4 | operation not supported |
| 5 | PH-SIM PIN required |
| 10 | SIM not inserted |
| 11 | SIM PIN required |
| 12 | SIM PUK required |
| 13 | SIM failure |
| 14 | SIM busy |
| 15 | SIM wrong |
| 16 | incorrect password |
| 17 | SIM PIN2 required |
| 18 | SIM PUK2 required |
| 20 | memory full |
| 21 | invalid index |
| 22 | not found |
| 23 | memory failure |
| 24 | text string too long |
| 25 | invalid characters in text string |
| 26 | dial string too long |
| 27 | invalid characters in dial string |
| 30 | no network service |

| Numeric Format | Verbose Format |
|---|---|
| 31 | network timeout |
| 32 | network not allowed - emergency calls only |
| 40 | network personalization PIN required |
| 41 | network personalization PUK required |
| 42 | network subset personalization PIN required |
| 43 | network subset personalization PUK required |
| 44 | service provider personalization PIN required |
| 45 | service provider personalization PUK required |
| 46 | corporate personalization PIN required |
| 47 | corporate personalization PUK required |
| Easy CAMERA® related errors: | |
| 50 | Camera not found |
| 51 | Camera Initialization Error |
| 52 | Camera not Supported |
| 53 | No Photo Taken |
| 54 | NET BUSY...Camera TimeOut |
| 55 | Camera Error |
| General purpose error: | |
| 100 | unknown |
| GPRS related errors to a failure to perform an Attach: | |
| 103 | Illegal MS (#3) |
| 106 | Illegal ME (#6) |
| 107 | GPRS service not allowed (#7) |
| 111 | PLMN not allowed (#11) |
| 112 | Location area not allowed (#12) |
| 113 | Roaming not allowed in this location area (#13) |
| GPRS related errors to a failure to Activate a Context and others: | |
| 132 | service option not supported (#32) |
| 133 | requested service option not subscribed (#33) |
| 134 | service option temporarily out of order (#34) |
| 148 | unspecified GPRS error |
| 149 | PDP authentication failure |
| 150 | invalid mobile class |
| Network survey errors: | |
| 257 | Network survey error (No Carrier) |
| 258 | Network survey error (Busy) |
| 259 | Network survey error (Wrong request) |
| 260 | Network survey error (Aborted) |
| Easy GPRS® related errors: | |
| 400 | generic undocumented error |
| 401 | wrong state |
| 402 | wrong mode |
| 403 | context already activated |
| 404 | stack already active |
| 405 | activation failed |
| 406 | context not opened |
| 407 | cannot setup socket |
| 408 | cannot resolve DN |
| 409 | timeout in opening socket |
| 410 | cannot open socket |
| 411 | remote disconnected or timeout |
| 412 | connection failed |
| 413 | tx error |
| 414 | already listening |

2.2.1.2 +CMS ERROR - message service failure result code

This is NOT a command, it is the error response to +Cxxx GSM 07.05 commands

Syntax: AT+CMS ERROR:<err>

Parameter: <err> - error code can be either numeric or verbose.

<err> values:

| Numeric Format | Verbose Format |
|----------------|--------------------------------------|
| 0...127 | GSM 04.11 Annex E-2 values |
| 128...255 | GSM 03.40 sub clause 9.2.3.22 values |
| 300 | ME failure |
| 301 | SMS service of ME reserved |
| 302 | operation not allowed |
| 303 | operation not supported |
| 304 | invalid PDU mode parameter |
| 305 | invalid text mode parameter |
| 310 | SIM not inserted |
| 311 | SIM PIN required |
| 312 | PH-SIM PIN required |
| 313 | SIM failure |
| 314 | SIM busy |
| 315 | SIM wrong |
| 316 | SIM PUK required |
| 317 | SIM PIN2 required |
| 318 | SIM PUK2 required |
| 320 | memory failure |
| 321 | invalid memory index |
| 322 | memory full |
| 330 | SMSC address unknown |
| 331 | no network service |
| 332 | network timeout |
| 340 | no +CNMA acknowledgement expected |
| 500 | unknown error |

2.2.2 Information responses and result codes

The TA response, in case of verbose response format enabled, for the previous examples command line could be as shown below:

information response to +CMD1? <CR><LF>+CMD1:2,1,10<CR><LF>

information response to +CMD1=? <CR><LF>+CMD1(0-2),(0,1),(0-15)<CR><LF>

final result code <CR><LF>OK<CR><LF>

Moreover there are other two types of result codes:

- *result codes* that inform about progress of TA operation (e.g. connection establishment CONNECT)
- *result codes* that indicate occurrence of an event not directly associated with issuance of a command from TE (e.g. ring indication RING).

Here the basic result codes according to ITU-T V25Ter recommendation

| Result Codes | |
|---------------------|--------------|
| Numeric form | Verbose form |
| 0 | OK |
| 1 | CONNECT |
| 2 | RING |
| 3 | NO CARRIER |
| 4 | ERROR |
| 6 | NO DIALTONE |
| 7 | BUSY |
| 8 | NO ANSWER |

2.2.3 Command Response Timeout

Every command issued to the Telit modules returns a result response if response codes are enabled (default). The time needed to process the given command and return the response varies from command to command and may depend also from the network on which the command may interact. As a result every command is provided with a proper timeout time, if this time elapses without any result from the operation, then an ERROR response can be reported as if the operation was not successful and the operation is anyway terminated.

The timeout time is quite short for commands that imply only internal set up commands, but may be very long for command that interact with the network (or even a set of Networks).

The default timeout is 100 ms for all the commands that have no interaction with the network or upper software layers.

In the table below are listed all the commands whose timeout differs from the default 100 ms and their effective timeout is reported:

| Command | Timeout (Seconds) |
|----------------|--------------------------|
| +CBST | 0.2 |
| +CR | 0.2 |
| +CRC | 0.2 |
| +CRLP | 0.2 |
| +CSCS | 0.2 |
| +CEER | 5 |
| +CGMI | 5 |
| +CGMM | 5 |
| +CGMR | 5 |
| +CGSN | 20 |
| +CIMI | 20 |
| +CNUM | 20 |
| +CREG | 5 |
| +COPS | 180 |
| +CLCK | 180 |
| @CLCK | 180 |
| +CPWD | 180 |
| +CLIP | 180 |
| +CLIR | 180 |

| Command | Timeout (Seconds) |
|---------|-----------------------|
| +CCFC | 180 |
| +CCWA | 20 |
| +CHLD | 20 |
| +CUSD | 180 |
| +CAOC | 20 |
| +CSSN | 20 |
| +CLCC | 20 |
| +CPAS | 5 |
| +CPIN | 20 |
| +CSQ | 5 |
| +CPBS | 5 |
| +CPBR | 20 |
| +CPBF | 20 |
| +CPBW | 20 |
| +CALM | 5 |
| +CRSL | 5 |
| +CLVL | 5 |
| +CMUT | 5 |
| +CACM | 20 |
| +CMM | 20 |
| +CPUC | 20 |
| +CMEE | 5 |
| +VTS | 20 |
| +GMI | 5 |
| +GMM | 5 |
| +GMR | 5 |
| +GSN | 20 |
| I3 | 5 |
| I4 | 5 |
| I5 | 5 |
| +CSMS | 5 |
| +CPMS | 5 |
| +CMGF | 5 |
| +CSCA | 20 |
| +CSMP | 5 |
| +CSDH | 5 |
| +CSAS | 5 |
| +CRES | 5 |
| +CNMI | 5 |
| +CMGS | 180 / 5 for prompt">" |
| +CMSS | 180 |
| +CMGW | 5 / 5 for prompt">" |
| +CMGD | 5 |
| +CMGR | 5 |
| +CMGL | 5 |
| #CAP | 10 |
| #SRS | 10 |
| #SRP | 10 |
| #STM | 10 |
| #PCT | 10 |
| #SHDN | 10 |

| Command | Timeout (Seconds) |
|----------|-------------------|
| #QTEMP | 10 |
| #SGPO | 10 |
| #GGPI | 10 |
| #MONI | 10 |
| #CGMI | 5 |
| #CGMM | 5 |
| #CGMR | 5 |
| #CGSN | 20 |
| #CIMI | 5 |
| +CGACT | 180 |
| +CGATT | 180 |
| +CGDATA | 20 |
| +CGDCONT | 20 |
| +CGPADDR | 20 |
| +CGQMIN | 20 |
| +CGQREQ | 20 |

2.2.4 Command issuing timing

The chain Command -> Response shall always be respected and a new command must not be issued before the module has terminated all the sending of its response result code (whatever it may be).

This applies especially to applications that “sense” the OK text and therefore may send the next command before the complete code <CR><LF>OK<CR><LF> is sent by the module. It is advisable anyway to wait for at least 20ms between the end of the reception of the response and the issue of the next AT command.

If the response codes are disabled and therefore the module does not report any response to the command, then at least the 20ms pause time shall be respected.

During command mode, due to hardware limitations, under severe CPU load the serial port can lose some characters if placed in auto-bauding at high speeds. Therefore if you encounter this problem fix the baud rate with AT+IPR command.

2.2.5 Factory Profile and parameters stored in the profiles

The Telit wireless modules store several command configurations in the internal non-volatile memory (see command &W, &Y, &P, &F, &F1), allowing to remember this status even after power off.

There are two user customizable profiles and one factory profile in the NVM of the device, by default the device will start with user profile 0 equal to factory profile.

For backward compatibility the profile is divided into two sections, one base section which was historically the one that was saved and restored in early releases of code, and the extended section which includes all the remaining applicable commands.

There are some other commands which are particular and are stored in NVM outside the profile, being independent from &W, &Y, &P, &F commands and saved usually without any command issuing (except from Easy GPRS® and Email management command sets) having only one saved value which is always restored at start-up.

The &W command is used to save the actual values of both sections of profiles into the NVM user profile. The profile loaded at start-up can be set with both &Y and &P commands. The &Y command instructs the device to load at start-up only the base section

remaining backward compatible. The new &P command instructs the device to load the full profile base + extended sections at start-up. In the same manner the &F command resets to factory profile values only the command of the base section of profile, while the &F1 resets to factory profile values the full set of base + extended section commands.

The parameters that are part of the base section of the profile:

```
GSM DATA MODE      : +CBST
AUTOBAUD           : +IPR
COMMAND ECHO       : E
RESULT MESSAGES    : Q
VERBOSE MESSAGES   : V
EXTENDED MESSAGES  : X
FLOW CONTROL OPTIONS : &K, +IFC
CTS (C106) OPTIONS : &B
DSR (C107) OPTIONS : &S
DTR (C108) OPTIONS : &D
DCD (C109) OPTIONS : &C
RI (C125) OPTIONS  : \R
POWER SAVING       : +CFUN
DEFAULT PROFILE    : &YO
S REGISTERS: S0;S1;S2;S3;S4;S5;S7;S12;S25;S30;S38
CHARACTER FORMAT   : +ICF
```

The parameters that are part of the extended section of the profile:

```
+CRC,                +FCLASS,                +DR,
+ILRR,               +CR,                  +CSNS,
+CRLP,               +CNMI,               +CMEE,
+CSMP,               +CSDH,               +CSCB,
+CSSN,               +CUSD,               +CALM,
+CRSL,               +CMUT,               +CAOC,
+CREG,               +CLIP,               +CLIR,
+CMGF,               +CCWA,               +CLVL,
+COPS,
#QSS,                #ACAL,                #SMOV,
#CAP,                #HFMICG,              #HSMICG,
#SHFEC,              #SRS,                 #STM,
#SHFSD,              #SRP,                 #NITZ,
#SKIPESC
```

The parameters that are always saved in NVM independently from the profile (unique values):

```
+CGDCONT,            +CGQREQ,              +CGQMIN,
#BND                 #SELINT
```

The parameters that are saved in NVM independently from the profile on request:

```
#USERID,             #PASSW,               #PKTSZ,
#DSTO,               #SKTTO,               #SKTSET
#SKTCT
```

saved with #SKTSAV command and reset with #SKTRST command.

```
#ESMTP,              #EADDR,               #EUSER,
#EPASSW
```

saved with #ESAV command and reset with #ERST command.

2.2.6 AT Command availability table

The following table show the AT command set and the applicability/backward compatibility matrix on the Telit wireless module family.

| COMMAND | GM862 PCS & GM862 QUAD | GM862 PY | GM862 QUAD-PY | TRIZIUM & GE863 QUAD | TRIZIUM GPS | GE863 QUAD-PY | Pag | Function | NOTES |
|--------------------------------------|---------------------------------|-------------|------------------|-------------------------------|----------------|------------------|-----|--|-------|
| GENERIC MODEM CONTROL | | | | | | | | | |
| &F | • | • | • | • | • | • | 21 | Set to factory-defined configuration | |
| Z | • | • | • | • | • | • | 21 | Soft reset | |
| +FCLASS | • | • | • | • | • | • | 22 | Select active service class | |
| &Y | • | • | • | • | • | • | 22 | Designate a default reset basic profile | |
| &P | • | • | • | • | • | • | 23 | Designate a default reset full profile | |
| &W | • | • | • | • | • | • | 23 | Store current configuration | |
| &Z | • | • | • | • | • | • | 24 | Store telephone number in the internal pb. | |
| &N | • | • | • | • | • | • | 24 | Display internal pp stored numbers | |
| +GMI | • | • | • | • | • | • | 24 | Request manufacturer identification | |
| +GMM | • | • | • | • | • | • | 24 | Request model identification | |
| +GMR | • | • | • | • | • | • | 24 | Request revision identification | |
| +GCAP | • | • | • | • | • | • | 25 | Request capabilities list | |
| +GSN | • | • | • | • | • | • | 25 | Request serial number | |
| &V | • | • | • | • | • | • | 25 | Display current configuration & profile | |
| &V0 | • | • | • | • | • | • | 25 | Display current configuration & profile | |
| &V1 | • | • | • | • | • | • | 25 | Display S registers values | |
| &V2 | • | • | • | • | • | • | 25 | Display last connection statistics | |
| &V3 | • | • | • | • | • | • | 26 | Display S registers values | |
| \V | • | • | • | • | • | • | 26 | Single line connect message | |
| %L | • | • | • | • | • | • | 26 | Report line signal level | |
| %Q | • | • | • | • | • | • | 26 | Report line quality | |
| +GCI | • | • | • | • | • | • | 27 | Select the country of installation | |
| L | • | • | • | • | • | • | 27 | Monitor speaker loudness | |
| M | • | • | • | • | • | • | 27 | Monitor speaker mode | |
| DTE – MODEM INTERFACE CONTROL | | | | | | | | | |
| E | • | • | • | • | • | • | 28 | Command echo | |
| Q | • | • | • | • | • | • | 29 | Quiet result codes | |
| V | • | • | • | • | • | • | 29 | Result code form | |
| X | • | • | • | • | • | • | 30 | Extended result codes | |
| I | • | • | • | • | • | • | 30 | Request identifier and software checksum | |
| &C | • | • | • | • | • | • | 31 | Data carrier detect (DCD) control | |
| &D | • | • | • | • | • | • | 31 | Data terminal ready (DTR) control | |
| &K | • | • | • | • | • | • | 32 | Flow control | |
| &S | • | • | • | • | • | • | 32 | Data set ready (DSR) control | |
| \R | • | • | • | • | • | • | 33 | Ring (RI) control | |
| +IPR | • | • | • | • | • | • | 33 | Fixed DTE interface rate | |
| +IFC | • | • | • | • | • | • | 34 | DTE – DTA flow control | |
| +ILRR | • | • | • | • | • | • | 34 | DTE – modem rate reporting | |
| +ICF | • | • | • | • | • | • | 35 | DTE – modem character format | |
| CALL CONTROL | | | | | | | | | |
| D | • | • | • | • | • | • | 36 | Dial | |
| T | • | • | • | • | • | • | 38 | Set tone dial | |
| P | • | • | • | • | • | • | 38 | Set pulse dial | |
| A | • | • | • | • | • | • | 38 | Answer | |
| H | • | • | • | • | • | • | 38 | Disconnect | |
| O | • | • | • | • | • | • | 38 | Return to On Line Mode | |
| &G | • | • | • | • | • | • | 39 | Guard tone | |
| &Q | • | • | • | • | • | • | 39 | Sync/async mode | |
| MODULATION CONTROL | | | | | | | | | |
| +MS | • | • | • | • | • | • | 40 | Modulation control | |
| %E | • | • | • | • | • | • | 40 | Enable/disable line quality monitor and auto retrain or fallback / fallforward | |
| COMPRESSION CONTROL | | | | | | | | | |

| COMMAND | GM862 PCS & GM862 QUAD | GM862 PY | GM862 QUAD-PY | TRIZIUM & GE863 QUAD | TRIZIUM GPS | GE863 QUAD-PY | Pag | Function | NOTES |
|--|------------------------|----------|---------------|----------------------|-------------|---------------|-----|---|-----------|
| +DS | • | • | • | • | • | • | 41 | Set data compression | |
| +DR | • | • | • | • | • | • | 41 | Data compression reporting | |
| BREAK CONTROL | | | | | | | | | |
| \B | • | • | • | • | • | • | 42 | Transmit break to remote | |
| \K | • | • | • | • | • | • | 42 | Break handling | |
| \N | • | • | • | • | • | • | 42 | Operating mode | |
| S PARAMETERS | | | | | | | | | |
| S0 | • | • | • | • | • | • | 43 | Number of rings to auto answer | |
| S1 | • | • | • | • | • | • | 43 | Ring counter | |
| S2 | • | • | • | • | • | • | 44 | Escape character | |
| S3 | • | • | • | • | • | • | 44 | Carriage return character | |
| S4 | • | • | • | • | • | • | 45 | Line feed character | |
| S5 | • | • | • | • | • | • | 45 | Backspace character | |
| S7 | • | • | • | • | • | • | 46 | Wait time for carrier, silence or dial tone | |
| S12 | • | • | • | • | • | • | 46 | Escape prompt delay | |
| S25 | • | • | • | • | • | • | 47 | Delay to DTR off | |
| S30 | • | • | • | • | • | • | 47 | Disconnect inactivity timer | |
| S38 | • | • | • | • | • | • | 48 | Delay before forced hang up | |
| ETSI GSM 07.07 - GENERAL | | | | | | | | | |
| +CGMI | • | • | • | • | • | • | 49 | Request manufacturer identification | |
| +CGMM | • | • | • | • | • | • | 49 | Request model identification | |
| +CGMR | • | • | • | • | • | • | 49 | Request revision identification | |
| +CGSN | • | • | • | • | • | • | 49 | Request product serial number identification | |
| +CSCS | • | • | • | • | • | • | 50 | Select TE character set | |
| +CIMI | • | • | • | • | • | • | 50 | Request international mobile subscriber identity (IMSI) | |
| ETSI GSM 07.07 - CALL CONTROL | | | | | | | | | |
| +CBST | • | • | • | • | • | • | 51 | Select bearer service type | |
| +CRLP | • | • | • | • | • | • | 52 | Radio link protocol | |
| +CR | • | • | • | • | • | • | 52 | Service reporting control | |
| +CEER | • | • | • | • | • | • | 53 | Extended error report | |
| +CRC | • | • | • | • | • | • | 53 | Cellular result codes | |
| +CSNS | • | • | • | • | • | • | 54 | Single numbering scheme | |
| ETSI GSM 07.07 – NETWORK SERVICE HANDLING | | | | | | | | | |
| +CNUM | • | • | • | • | • | • | 55 | Subscriber number | |
| +COPN | • | • | • | • | • | • | 55 | Read operator names | |
| +CREG | • | • | • | • | • | • | 56 | Network registration report | |
| +COPS | • | • | • | • | • | • | 58 | Operator selection | |
| +CLCK | • | • | • | • | • | • | 59 | Facility lock/ unlock | see @CLCK |
| @CLCK | • | • | • | • | • | • | 60 | Facility lock/ unlock (improved) | |
| +CPWD | • | • | • | • | • | • | 61 | Change facility password | |
| +CLIP | • | • | • | • | • | • | 62 | Calling line identification presentation | |
| +CLIR | • | • | • | • | • | • | 63 | Calling line identification restriction | |
| +CCFC | • | • | • | • | • | • | 64 | Call forwarding number and conditions | |
| +CCWA | • | • | • | • | • | • | 65 | Call waiting | |
| +CHLD | • | • | • | • | • | • | 66 | Call holding services | |
| +CUSD | • | • | • | • | • | • | 66 | Unstructured suppl. service data | |
| +CAOC | • | • | • | • | • | • | 68 | Advice of charge | |
| +CLCC | • | • | • | • | • | • | 69 | List current calls | |
| +CSSN | • | • | • | • | • | • | 70 | SS Notification | |
| +CCUG | • | • | • | • | • | • | 71 | Closed User Group suppl. service control | |
| ETSI GSM 07.07 – MOBILE EQUIPMENT CONTROL | | | | | | | | | |
| +CPAS | • | • | • | • | • | • | 72 | Phone activity status | |
| +CFUN | • | • | • | • | • | • | 73 | Set phone functionality (Power Saving Management) | |
| +CPIN | • | • | • | • | • | • | 74 | Enter PIN | |
| +CSQ | • | • | • | • | • | • | 75 | Signal quality | |
| +CPBS | • | • | • | • | • | • | 76 | Select phonebook memory storage | |
| +CPBR | • | • | • | • | • | • | 77 | Read phonebook entries | |
| +CPBF | • | • | • | • | • | • | 78 | Find phonebook entries | |
| +CPBW | • | • | • | • | • | • | 79 | Write phonebook entry | |

| COMMAND | GM862 PCS & GM862 QUAD | GM862 PY | GM862 QUAD-PY | TRIZIUM & GE863 QUAD | TRIZIUM GPS | GE863 QUAD-PY | Pag | Function | NOTES |
|---|------------------------|----------|---------------|----------------------|-------------|---------------|-----|--|-------|
| +CCLK | . | . | . | . | . | . | 80 | Clock Management | |
| +CALA | . | . | . | . | . | . | 81 | Alarm Management | |
| +CALM | . | . | . | . | . | . | 83 | Alert sound mode | |
| +CRSL | . | . | . | . | . | . | 84 | Ringer sound level | |
| +CLVL | . | . | . | . | . | . | 85 | Loudspeaker volume level | |
| +CMUT | . | . | . | . | . | . | 85 | Microphone mute control | |
| +CACM | . | . | . | . | . | . | 86 | Accumulated call meter | |
| +CAMP | . | . | . | . | . | . | 86 | Accumulated call meter maximum | |
| +CPUC | . | . | . | . | . | . | 87 | Price per unit and currency table | |
| +CCID | . | . | . | . | . | . | 87 | Read ICCID (Integrated Circuit Card Id.) | |
| ETSI GSM 07.07 – MOBILE EQUIPMENT ERRORS | | | | | | | | | |
| +CMEE | . | . | . | . | . | . | 88 | Report mobile equipment error | |
| ETSI GSM 07.07 – VOICE CONTROL | | | | | | | | | |
| +VTS | . | . | . | . | . | . | 89 | DTMF tones transmission | |
| ETSI GSM 07.07 – COMMANDS FOR GPRS | | | | | | | | | |
| +CGACT | . | . | . | . | . | . | 90 | PDP context activate or deactivate | |
| +CGATT | . | . | . | . | . | . | 91 | GPRS attach or detach | |
| +CGDATA | . | . | . | . | . | . | 92 | Enter data state | |
| +CGDCONT | . | . | . | . | . | . | 93 | Define PDP context | |
| +CGADDR | . | . | . | . | . | . | 94 | Show PDP address | |
| +CGREG | . | . | . | . | . | . | 95 | GPRS network registration status | |
| +CGQMIN | . | . | . | . | . | . | 96 | Quality of service profile (min. acceptable) | |
| +CGQREQ | . | . | . | . | . | . | 97 | Quality of service profile (requested) | |
| ETSI GSM 07.07 - BATTERY CHARGER | | | | | | | | | |
| +CBC | . | . | . | . | . | . | 98 | Battery Charge | |
| ETSI GSM 07.05 - SMS & CB SERVICES | | | | | | | | | |
| +CSMS | . | . | . | . | . | . | 99 | Select message service | |
| +CPMS | . | . | . | . | . | . | 100 | Preferred message storage | |
| +CMGF | . | . | . | . | . | . | 101 | Message format | |
| +CSMP | . | . | . | . | . | . | 101 | Set parameters in text mode | |
| +CSDH | . | . | . | . | . | . | 102 | Show parameters in text mode | |
| +CSAS | . | . | . | . | . | . | 102 | Save setting text mode | |
| +CRES | . | . | . | . | . | . | 103 | Restore text mode settings | |
| +CSCB | . | . | . | . | . | . | 104 | Select Cell Broadcast Message types | |
| +CSCA | . | . | . | . | . | . | 105 | Service center address | |
| +CNMI | . | . | . | . | . | . | 106 | New message indications to TE | |
| +CMGL | . | . | . | . | . | . | 109 | List messages | |
| +CMGR | . | . | . | . | . | . | 111 | Read message | |
| +CMGS | . | . | . | . | . | . | 113 | Send message | |
| +CMSS | . | . | . | . | . | . | 114 | Send message from storage | |
| +CMGW | . | . | . | . | . | . | 115 | Write message to memory | |
| +CMGD | . | . | . | . | . | . | 116 | Delete message | |
| FAX CLASS 1 AT COMMANDS – GENERAL CONFIG. | | | | | | | | | |
| +FCLASS | . | . | . | . | . | . | 117 | Select active service class | |
| +FMI? | . | . | . | . | . | . | 117 | Report manufacturer ID | |
| +FMM? | . | . | . | . | . | . | 117 | Report model ID | |
| +FMR? | . | . | . | . | . | . | 117 | Report revision ID | |
| +FTS | . | . | . | . | . | . | 118 | Stop Transmission and pause | |
| +FRS | . | . | . | . | . | . | 118 | Wait for receive silence | |
| +FTM | . | . | . | . | . | . | 118 | Transmit data modulation | |
| +FRM | . | . | . | . | . | . | 119 | Receive data modulation | |
| +FTH | . | . | . | . | . | . | 119 | Transmit data with HDLC framing | |
| +FRH | . | . | . | . | . | . | 119 | Receive data with HDLC framing | |
| SERIAL PORT CONTROL | | | | | | | | | |
| +FLO | . | . | . | . | . | . | 120 | Select flow control specified by type | |
| +FPR | . | . | . | . | . | . | 120 | Select serial port rate | |
| +FDD | . | . | . | . | . | . | 121 | Double esc character replacement control | |
| CUSTOM AT COMMANDS - GENERAL CONFIGURATION | | | | | | | | | |
| #SELINT | . | . | . | . | . | . | 122 | Select type of interface | |
| #CGMI | . | . | . | . | . | . | 123 | Request manufacturer identification | |
| #CGMM | . | . | . | . | . | . | 123 | Request model identification | |

| COMMAND | GM862 PCS & GM862 QUAD | GM862 PY | GM862 QUAD-PY | TRIZIUM & GE863 QUAD | TRIZIUM GPS | GE863 QUAD-PY | Pag | Function | NOTES |
|--|------------------------|----------|---------------|----------------------|-------------|---------------|-----|---|-----------|
| #CGMR | • | • | • | • | • | • | 123 | Request revision identification | |
| #CGSN | • | • | • | • | • | • | 123 | Request product serial number identification | |
| #CIMI | • | • | • | • | • | • | 123 | Request international mobile subscriber identity (IMSI) | |
| #CAP | • | • | • | • | • | • | 124 | Change Audio Path | |
| #SRS | • | • | • | • | • | • | 125 | Select ringer sound | |
| #SRP | • | • | • | • | • | • | 126 | Select Ringer Path | |
| #STM | • | • | • | • | • | • | 127 | Signalling Tones Mode | |
| #PCT | • | • | • | • | • | • | 127 | Display PIN Counter | |
| #SHDN | • | • | • | • | • | • | 127 | Software Shut Down | |
| #WAKE | • | • | • | • | • | • | 128 | Wake from Alarm mode | |
| #QTEMP | • | • | • | • | • | • | 129 | Query Temperature overflow | |
| #SGPO | • | • | • | • | • | • | 130 | Set General Purpose Output | |
| #GGPI | • | • | • | • | • | • | 131 | Read General Purpose Input | |
| #GPIO | • | • | • | • | • | • | 132 | General Purpose Input/Output pin control | |
| #ADC | | | | • | • | • | 134 | Read Analog/Digital Converter input | |
| #VAUX | | | | • | • | • | 134 | Auxiliary Voltage Output Control | |
| #AUTOATT | • | • | • | • | • | • | 135 | Enables | |
| #MONI | • | • | • | • | • | • | 135 | Monitor Cells | |
| #QSS | • | • | • | • | • | • | 138 | Query SIM Status | |
| #ACAL | • | • | • | • | • | • | 138 | Set Automatic Call | |
| #SMOV | • | • | • | • | • | • | 139 | SMS Overflow | |
| #SHFEC | • | • | • | • | • | • | 139 | Set Handsfree echo canceller | |
| #HFMICG | • | • | • | • | • | • | 139 | Handsfree Microphone Gain | |
| #HSMICG | • | • | • | • | • | • | 140 | Handset Microphone Gain | |
| #SHFSD | • | • | • | • | • | • | 141 | Set headset sidetone | |
| #/ | • | • | • | • | • | • | 141 | Repeat last command | |
| #NITZ | • | • | • | • | • | • | 142 | Network Timezone | |
| #BND | • | • | • | • | • | • | 143 | Select Band | |
| #SKIPESC | • | • | • | • | • | • | 143 | Skip escape sequence | |
| CUSTOM AT COMMANDS – FTP AT COMMANDS | | | | | | | | | |
| #FTPOPEN | • | • | • | • | • | • | 144 | FTP Open command | |
| #FTPCLOSE | • | • | • | • | • | • | 144 | FTP Close command | |
| #FTPPUT | • | • | • | • | • | • | 144 | FTP Put command | |
| #FTPPUTPH | • | • | • | • | • | • | 145 | FTP Put photo command | |
| #FTPGET | • | • | • | • | • | • | 145 | FTP Get command | |
| #FTPTYPE | • | • | • | • | • | • | 146 | FTP Type command | |
| #FTPMSG | • | • | • | • | • | • | 146 | FTP Read Message command | |
| #FTPDELE | • | • | • | • | • | • | 146 | FTP Delete command | |
| #FTPPWD | • | • | • | • | • | • | 146 | FTP Print working directory command | |
| #FTPCWD | • | • | • | • | • | • | 146 | FTP Change working directory command | |
| #FTPLIST | • | • | • | • | • | • | 147 | FTP List command | |
| ENHANCED EASY GPRS® Extension AT Commands | | | | | | | | | |
| #USERID | • | • | • | • | • | • | 148 | Authentication User ID control | |
| #PASSW | • | • | • | • | • | • | 148 | Authentication Password control | |
| #PKTSZ | • | • | • | • | • | • | 149 | Packet Size control | |
| #DSTO | • | • | • | • | • | • | 150 | Data Sending TimeOut control | |
| #SKTTO | • | • | • | • | • | • | 151 | Socket inactivity timeout control | |
| #SKTSET | • | • | • | • | • | • | 152 | Socket definition control | |
| #SKTOP | • | • | • | • | • | • | 153 | Socket Open command | |
| #QDNS | • | • | • | • | • | • | 153 | Query DNS | |
| #SKTCT | • | • | • | • | • | • | 154 | Socket TCP Connection Timeout | |
| #SKTSAV | • | • | • | • | • | • | 155 | Socket Parameters Save Command | |
| #SKTRST | • | • | • | • | • | • | 155 | Socket Parameters Reset Command | |
| #GPRS | • | • | • | • | • | • | 156 | GPRS context activation control | |
| #SKTD | • | • | • | • | • | • | 157 | Socket Dial | |
| #SKTL | • | • | • | • | • | • | 159 | Socket Listen | See @SKTL |
| @SKTL | • | • | • | • | • | • | 161 | Socket Listen (improved) | |
| #FRWL | • | • | • | • | • | • | 163 | Firewall setup | |
| EASY CAMERA® Management AT Commands | | | | | | | | | |
| #CAMON | • | • | • | • | • | • | 165 | Camera ON | |

| COMMAND | GM862 PCS & GM862 QUAD | GM862 PY | GM862 QUAD-PY | TRIZIUM & GE863 QUAD | TRIZIUM GPS | GE863 QUAD-PY | Pag | Function | NOTES |
|--|------------------------|----------|---------------|----------------------|-------------|---------------|-----|---|-------|
| #CAMOFF | • | • | • | • | • | • | 165 | Camera OFF | |
| #TPHOTO | • | • | • | • | • | • | 165 | Camera Take Photo | |
| #RPHOTO | • | • | • | • | • | • | 165 | Camera Read Photo | |
| #OBJL | • | • | • | • | • | • | 166 | Object List | |
| #OBJR | • | • | • | • | • | • | 166 | Object Read | |
| #CAMQUA | • | • | • | • | • | • | 167 | Camera Select Quality of Photo | |
| #CMODE | • | • | • | • | • | • | 167 | Camera Select Operating MODE | |
| #SELCAM | • | • | • | • | • | • | 168 | Camera Model selection | |
| #CAMEN | • | • | • | • | • | • | 168 | Camera ON/OFF | |
| #CAMRES | • | • | • | • | • | • | 169 | Camera resolution | |
| #CAMCOL | • | • | • | • | • | • | 169 | Camera colour mode selection | |
| #CAMZOOM | • | • | • | • | • | • | 169 | Camera zoom setting | |
| #CAMTXT | • | • | • | • | • | • | 170 | Camera time/date overprint | |
| Email management AT Commands | | | | | | | | | |
| #SMTP | • | • | • | • | • | • | 171 | Email SMTP server | |
| #EADDR | • | • | • | • | • | • | 171 | Email sender address | |
| #EUSER | • | • | • | • | • | • | 172 | Email authentication USER NAME | |
| #EPASSW | • | • | • | • | • | • | 172 | Email authentication PASSWORD | |
| #SEMAIL | • | • | • | • | • | • | 173 | Send Email | |
| #EMAILACT | • | • | • | • | • | • | 174 | E-mail context activation control | |
| #EMAILD | • | • | • | • | • | • | 175 | E-mail socket dial | |
| #ESAV | • | • | • | • | • | • | 176 | Email Parameters Save Command | |
| #ERST | • | • | • | • | • | • | 176 | Email Parameters Reset Command | |
| Easy Scan® Extension AT commands | | | | | | | | | |
| #CSURV | • | • | • | • | • | • | 177 | Network Survey of the complete 900/1800/1900 Network | |
| #CSURVC | • | • | • | • | • | • | 179 | Network Survey in numeric format | |
| #CSURVU | • | • | • | • | • | • | 180 | Network Survey of user defined 900/1800/1900 channels | |
| #CSURVUC | • | • | • | • | • | • | 180 | Network Survey in numeric format | |
| #CSURVF | • | • | • | • | • | • | 181 | Network Survey Format | |
| JAMMED DETECT & REPORT CUSTOM AT COMMAND | | | | | | | | | |
| #JDR | • | • | • | • | • | • | 182 | Jammed Detect & Report | |
| Easy Script® Extension – Python² interpreter | | | | | | | | | |
| #WSCRIPT | | • | • | | | • | 184 | Write script command | |
| #ESCRIP | | • | • | | | • | 185 | Select Active script command | |
| #RSCRIPT | | • | • | | | • | 186 | Read script command | |
| #LSCRIPT | | • | • | | | • | 187 | List script names command | |
| #DSCRIPT | | • | • | | | • | 187 | Delete script command | |
| #REBOOT | | • | • | | | • | 188 | Reboot command | |
| GPS Application AT commands | | | | | | | | | |
| \$GPSD | | | | | • | | 189 | GPS Device Type Set | |
| \$GPSSW | | | | | • | | 189 | GPS Software version | |
| \$GPSDATA | | | | | • | | 190 | GPS Data acquisition through serial port | |
| \$GPSDATAS | | | | | • | | 191 | GSM module serial port speed | |
| \$GPSNMUN | | | | | • | | 192 | Unsolicited NMEA data configuration | |
| \$GPSACP | | | | | • | | 194 | GPS Actual position information | |
| \$GPSSAV | | | | | • | | 195 | Save GPS parameters | |
| \$GPSRST | | | | | • | | 195 | Restore default GPS parameters | |

² PYTHON is a registered trademark of the Python Software Foundation.

2.3 Backward compatibility

In order to maintain compatibility of the AT commands interface through different products, we have introduced the new command AT#SELINT, which allows the user to switch from one interface style to the other.

The #SELINT=0 command switches the AT command interface of the products of which this document refers to, to the GM862-GSM and GM862-GPRS interface.

The #SELINT=1 command switches the AT command interface of the products of which this document refers to, to the GM862-PCS, PYTHON, QUAD-PY, TRIZIUM and GE863 interface.

The products are delivered to the customer with the AT commands interface, according to following table:

| Product | #SELINT=0 (GSM862-GSM / GM862-GPRS like) | #SELINT=1 |
|---------------|---|-----------|
| GM862-PCS | | X |
| GM862-PYTHON | | X |
| GM862-QUAD | X | |
| GM862-QUAD-PY | | X |
| TRIZIUM | | X |
| TRIZIUM-GPS | | X |
| GE863-QUAD | | X |
| GE863-QUAD-PY | | X |

Nevertheless, the default AT command interface can be changed at any time by the customer.

2.4 Repeating a command line

2.4.1 Last command automatic repetition

| A/ – Last command automatic repetition | |
|---|--|
| A/ | <p>If the prefix “A/” or “a/” is issued, the MODULE immediately execute once again the body of the preceding command line. No editing is possible and no termination character is necessary. A command line may be repeated multiple times through this mechanism, if desired.</p> <p>If “A/” is issued before any command line has been executed, the preceding command line is assumed to have been empty (that results in an OK result code).</p> <p>This command works only at fixed IPR.</p> <p>Note: issuing the custom command AT#/ causes the last command to be executed again too; moreover it doesn't need a fixed IPR.</p> |
| Reference | V25ter |

2.5 Hayes Compliant AT Commands

2.5.1 Generic Modem Control

2.5.1.1 &F - set to factory-defined configuration

| &F – set to factory-defined configuration | |
|--|---|
| AT&F[<value>] | <p>The command sets the parameters to default values specified by manufacturer; it takes in consideration hardware configuration switches and other manufacturer-defined criteria.</p> <p>Parameter: <value>: 0 – just the factory profile base section parameters are considered. 1 – either the factory profile base section and the extended section are considered (full factory profile).</p> <p>Note: if parameter <value> is omitted, the command has the same behaviour as AT&F0</p> |
| Reference | V25ter. |

2.5.1.2 Z - soft reset

| Z – soft reset | |
|------------------------|---|
| ATZ [<n>] | <p>Execution command loads the base section of the specified user profile and the extended section of the default factory profile.</p> <p>Parameter: <n> 0..1 - user profile number</p> <p>Note: if parameter <n> is omitted, the command has the same behaviour as ATZ0 Note: Must be the last command on the line.</p> |
| Reference | V25ter. |

2.5.1.3 +FCLASS - select active service class

| +FCLASS - select active service class | |
|--|--|
| AT+FCLASS=<n> | Set command set the wireless module in specified connection mode (data, fax, voice), hence all the calls done after, will be data or voice. Parameter: <n> 0 - data 1 - fax class 1 8 - voice |
| AT+FCLASS? | Read command returns the current configuration value of the parameter <n>. |
| AT+FCLASS=? | Test command returns all supported values of the parameters <n>. |
| Reference | GSM 07.07 |

2.5.1.4 &Y - designate a default reset basic profile

| &Y – designate a default reset basic profile | |
|---|--|
| AT&Y[<n>] | <p>The wireless module is able to store 2 complete configurations (see command &W). The execution command &Y defines which one of the 2 basic profiles will be the default profile to be loaded on start-up.</p> <p>Parameter: <n> 0..1 - profile</p> <p>Note: Differently from ATZ<n> command which simply loads the desired profile , with the command AT&Y the chosen profile becomes the one which will be loaded on every start-up.</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT&Y0</p> |

2.5.1.5 &P - designate a default reset full profile

| &P – designate a default reset full profile | |
|--|--|
| AT&P[<n>] | <p>The wireless module is able to store 2 complete configurations (see command &W). The execution command &P defines which one of the 2 full profiles will be the default profile to be loaded on start-up.</p> <p>Parameter: <n> 0..1 - profile</p> <p>Note: Differently from ATZ<n> command which simply loads the desired profile, with the command AT&P the chosen profile becomes the one which will be loaded on every start-up.</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT&P0</p> |
| Reference | Telit Specifications |

2.5.1.6 &W - store current configuration

| &W – store current configuration | |
|---|---|
| AT&W[<n>] | <p>Set command stores on profile n the complete configuration of the device.</p> <p>Parameter: <n> 0..1 - profile</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT&W0</p> |

2.5.1.7 &Z - store telephone number in the module internal phonebook

| &Z – store telephone number in the wireless module internal phonebook | |
|--|--|
| AT&Z<n> = <nr> | <p>The wireless module has a built in non volatile memory in which 10 telephone numbers of a maximum 24 digits can be stored.</p> <p>Set command AT&Z <n> = <nr> stores in the record n the telephone number nr. The records cannot be overwritten; they must be cleared before rewriting.</p> <p>Parameters: <n> - phonebook record <nr> - telephone number (string type)</p> <p>Note1: To delete the record <n> the command AT&Z<n>= must be issued. Note2: The records in the module memory can be viewed with the command AT&N, while the telephone number stored in the record n can be dialed by giving the command ATDS=<n>.</p> |

2.5.1.8 &N - display internal phonebook stored numbers

| &N – display internal phonebook stored numbers | |
|---|---|
| AT&N[<n>] | <p>Execution command returns the telephone number stored in the internal memory at the record number <n>.</p> <p>Parameter: <n> - phonebook record number</p> <p>Note: if parameter <n> is omitted then all the internal records are shown.</p> |

2.5.1.9 +GMI - request manufacturer identification

| +GMI – request manufacturer identification | |
|---|---|
| AT+GMI | Execution command returns the manufacturer identification. The output depends on the choice made through AT#SELINT command. |
| Reference | V.25ter |

2.5.1.10 +GMM - request model identification

| +GMM – request model identification | |
|--|---|
| AT+GMM | Execution command returns the model identification. |
| Reference | V.25ter |

2.5.1.11 +GMR - request revision identification

| +GMR – request revision identification | |
|---|---|
| AT+GMR | Execution command returns the software revision identification. |
| Reference | V.25ter |

2.5.1.12 +GCAP - request capabilities list

| +GCAP – request capabilities list | |
|--|--|
| AT+GCAP | Execution command returns the equipment supported command set list. Where: +CGSM: GSM ETSI command set +FCLASS: Fax command set +DS: Data Service common modem command set +MS: Mobile Specific command set |
| Reference | V.25ter |

2.5.1.13 +GSN - request serial number

| +GSN – request serial number | |
|-------------------------------------|---|
| AT+GSN | Execution command returns the device board serial number. Note: The number returned is not the IMSI, it is only the board number |
| Reference | V.25ter |

2.5.1.14 &V - display current configuration & profile

| &V – display current configuration & profile | |
|---|--|
| AT&V | Execution command returns some of the base configuration parameters settings. The output depends on the choice made through AT#SELINT command. |
| Reference | |

2.5.1.15 &V0 - display current configuration & profile

| &V0 – display current configuration & profile | |
|--|---|
| AT&V0 | Execution command returns all the configuration parameters settings. The output depends on the choice made through AT#SELINT command. Note: this command is the same as &V, it is included only for backwards compatibility. |

2.5.1.16 &V1 - display S registers values

| &V1 – display S registers values | |
|---|--|
| AT&V1 | Execution command returns the value of the S registers in decimal and hexadecimal value in the format: REG DEC HEX <reg> <dec> <hex> where <reg> - S register number (0 .. 38) <dec> - current value in decimal notation <hex> - current value in hexadecimal notation |

2.5.1.17 &V2 - display last connection statistics

| &V2 – display last connection statistics | |
|---|--|
|---|--|

| | |
|------------------|---|
| AT&V2 | Execution command returns the last connection statistics & connection failure reason. |
|------------------|---|

2.5.1.18 &V3 - display S registers values

| | |
|---|--|
| &V3 – display S registers values | |
| AT&V3 | Execution command returns the value of the S registers in decimal and hexadecimal value in the format: REG DEC HEX <reg> <dec> <hex> where <reg> - S register number (0 .. 38) <dec> - current value in decimal notation <hex> - current value in hexadecimal notation |

2.5.1.19 \V - single line connect message

| | |
|---|--|
| \V – Single line connect message | |
| AT\V<n> | Execution command set single line connect message. Parameter: <n> 0 - off 1 - on |

2.5.1.20 %L - report line signal level

| | |
|--------------------------------------|---|
| %L – report line signal level | |
| AT%L | Execution command reports the line signal level. Note: Since on mobile phone there's no line connection, command is included only for compatibility and returns only OK. To check signal strength (level) use the +CSQ command. |
| Note | It has no effect and is included only for backward compatibility with landline modems |

2.5.1.21 %Q - report line quality

| | |
|---------------------------------|---|
| %Q – report line quality | |
| AT%Q | Execution command reports the line quality indicator. Note: Since on mobile phone there's no line connection, command is included only for compatibility and returns only OK. To check signal quality use the +CSQ command. |
| Note | It has no effect and is included only for backward compatibility with landline modems |

2.5.1.22 +GCI – select the country of installation

| +GCI – select the country of installation | |
|--|---|
| AT+GCI=<code> | Set command selects the code of the country of installation according to ITU-T.35 Annex A. Parameter: <code> = 59 |
| AT+GCI? | Read command reports the currently selected country code. |
| AT+GCI=? | Test command reports the supported country codes (only 59 (Italy)). |
| Reference | V25ter. |

2.5.1.23 L – monitor speaker loudness

| L – monitor speaker loudness | |
|-------------------------------------|--|
| ATL<n> | Set command has no effect is included only for backward compatibility with landline modems. Parameter: <n> = 0 - 3 |
| Reference | V25ter. |

2.5.1.24 M - monitor speaker mode

| M – monitor speaker mode | |
|---------------------------------|--|
| ATM<n> | Set command has no effect is included only for backward compatibility with landline modems. Parameter: <n> = 0 - 3 |
| Reference | V25ter. |

2.5.2 DTE - modem interface control

2.5.2.1 E - command echo

| E – command echo | |
|-------------------------|---|
| ATE[<n>] | <p>Set command controls the command echo response of the device, enabling or disabling the echo.</p> <p>Parameter: <n></p> <ul style="list-style-type: none"> 0 - Disables command echo, hence after this command the only characters received by DTE are the responses to commands sent to device. 1 - Enables command echo (default), hence command sent to the device are echoed back to the DTE before the response is given. <p>Note: if parameter is omitted, the command has the same behaviour of ATE0</p> |
| Reference | V25ter |

2.5.2.2 Q - quiet result codes

| Q – quiet result codes | |
|-------------------------------|--|
| ATQ[<n>] | <p>Set command enables or disables the result codes. Parameter: <n> 0 - enables result codes (default) 1 - every result code is being replaced with a <CR> 2 - disables result codes</p> <p>Note: After issuing either ATQ1 or ATQ2 every information text transmitted in response to commands is not affected</p> <p>Note: if parameter is omitted, the command has the same behaviour of ATQ0</p> |
| Example | <p><i>After issuing ATQ0</i></p> <pre>AT+CGACT=? +CGACT: (0-1) OK</pre> <p><i>After issuing ATQ1</i></p> <pre>AT+CGACT=? +CGACT: (0-1) a <cr> ends the response</pre> <p><i>After issuing ATQ2</i></p> <pre>AT+CGACT=? +CGACT: (0-1) nothing is appended to the response</pre> |
| Reference | V25ter |

2.5.2.3 V- result code form

| V – result code form | |
|-----------------------------|--|
| ATV[<n>] | <p>Set command sets the result code format. Parameter: <n> 0 - set the short format (terse) return codes are numbers 0-8. 1 - set the long form (verbose) return codes. (default)</p> <p>Note: Line feed is not issued before a short format result code. Note: if parameter is omitted, the command has the same behaviour of ATV0</p> |
| Reference | V25ter |

2.5.2.4 X - extended result codes

| X – extended result codes | |
|----------------------------------|---|
| ATX[<n>] | <p>Set command selects the result code messages subset used by the modem to inform the DTE of the result of the commands.</p> <p>Parameter: <n> 0 - send only OK, CONNECT, RING, NO CARRIER, ERROR, NO ANSWER results. Busy tones' reporting is disabled. 1..4 - reports all messages (default: 1).</p> <p>Note: If parameter is omitted, the command has the same behaviour of ATX0</p> |
| Note | For complete control on CONNECT response message see also +DR command. |
| Reference | V25ter |

2.5.2.5 I - Request identifier and software checksum

| I – request identifier and software checksum | |
|---|---|
| ATI[<n>] | <p>Execution command returns the identifier and a software checksum. This value depends on the choice made through AT#SELINT command.</p> <p>Parameter: <n> 0 - numerical identifier. 1 - Module checksum 2 - checksum check result 3 - manufacturer 4 - product name 5 - DOB version</p> <p>Note: if parameter is omitted, the command has the same behaviour of ATIO</p> |
| Reference | V25ter |

2.5.2.6 &C - data carrier detect (DCD) control

| &C – Data carrier detect (DCD) control | |
|---|--|
| AT&C[<n>] | <p>Set command controls the RS232 DCD output behaviour. Parameter: <n></p> <ul style="list-style-type: none"> 0 - DCD remains high always. 1 - DCD follows the Carrier detect status: if carrier is detected DCD is high, otherwise DCD is low. (default) 2 - DCD off while disconnecting <p>Note: if parameter is omitted, the command has the same behaviour of AT&C0</p> |
| Reference | V25ter |

2.5.2.7 &D - data terminal ready (DTR) control

| &D – data terminal ready (DTR) control | |
|---|---|
| AT&D[<n>] | <p>Set command controls the Module behaviour to the RS232 DTR transitions. Parameter: <n></p> <ul style="list-style-type: none"> 0 - DTR transitions are ignored. (default) 1 - When the Module is connected, the high to low transition of DTR pin sets the device in command mode; the current connection is NOT closed. 2 - When the MODULE is connected, the high to low transition of DTR pin sets the device in command mode and the current connection is closed. 3 - C108/1 operation is enabled 4 - C108/1 operation is disabled <p>Note: if AT&D2 command is issued, the device does not answer to incoming calls if DTR is low, even if ATA command is given.</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT&D0</p> |
| Reference | V25ter |

2.5.2.8 &K - flow control

| &K – flow control | |
|------------------------------|---|
| AT&K[<n>] | <p>Set command controls the RS232 flow control behaviour. Parameter: <n></p> <ul style="list-style-type: none"> 0 - disabled 1 - only CTS active, Hardware mono-directional 2 - XON/XOFF software mono direction 3 - RTS/CTS active, Hardware bi-directional (default) 4 - XON/XOFF, Software bi-directional with filtering 5 - XON/XOFF, Software bi-directional without filtering (Pass Through) 6 - RTS/CTS active, Hardware bi-directional & software XON/XOFF (bi-directional) with filtering <p>Note: if parameter is omitted, the command has the same behaviour of AT&K0</p> |

2.5.2.9 &S - data set ready (DSR) control

| &S – data set ready (DSR) control | |
|--|---|
| AT&S[<n>] | <p>Set command controls the RS232 DSR pin behaviour. Parameter: <n></p> <ul style="list-style-type: none"> 0 - always ON 1 - Follows the GSM traffic channel indication. 2 - ON when connected 3 - ON when device is ready to receive commands (default) <p>Note: if option 1 is selected then DSR is tied up when the device receives from the network the GSM traffic channel indication.</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT&S0</p> |
| Reference | V25ter |

2.5.2.10 \R - ring (RI) control

| \R – ring (RI) control | |
|-------------------------------|---|
| AT\R[<n>] | <p>Set command controls the RING output pin behaviour.</p> <p>Parameter:</p> <ul style="list-style-type: none"> 0 - RING on during ringing and further connection 1 - RING on during ringing (default) 2 - RING follows the ring signal <p>Note: to check the ring option status use the &V command.</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT\R0</p> |

2.5.2.11 +IPR - fixed DTE interface rate

| +IPR – fixed DTE interface rate | |
|--|--|
| AT+IPR = <rate> | <p>Set command specifies the DTE speed at which the device accepts commands during command mode operation; it may be used to fix the DTE-DCE interface speed.</p> <p>Parameter:</p> <p><rate></p> <ul style="list-style-type: none"> 0 ..300 1200 2400 4800 9600 19200 38400 57600 115200 <p>If <rate> is unspecified or set to 0, then automatic speed detection is enabled and also character format (see +ICF) is set to auto-detect. (default)</p> <p>If <rate> is specified and not 0, DTE-DCE speed is fixed at that speed, hence no speed auto-detection (auto-bauding) is enabled.</p> |
| AT+IPR? | Read command returns the current value of +IPR parameter. |
| AT+IPR=? | Test command returns the supported serial port speed list. |
| Reference | V25ter |

2.5.2.12 +IFC - DTE - DTA flow control

| +IFC – DTE-DTA flow control | |
|--|---|
| AT+IFC = <by_te>, <by_ta> | Set command selects the flow control behaviour of the serial port in both directions: from DTE to DTA (<by_ta> option) and from DTA to DTE (<by_te>) Parameter: <by_te> - flow control option for the data received by DTE 0 - flow control None 1 - XON/XOFF filtered 2 - C105 (RTS) (default) 3 - XON/XOFF not filtered <by_ta> - flow control option for the data sent by DTA 0 - flow control None 1 - XON/XOFF 2 - C106 (CTS) (default) Note: This command is equivalent to &K command. |
| AT+IFC? | Read command returns active flow control settings. |
| AT+IFC=? | Test command returns all supported values of the parameters <by_te> and <by_ta>. |
| Reference | V25ter |

2.5.2.13 +ILRR - DTE - modem rate reporting

| +ILRR – DTE-modem rate reporting | |
|---|--|
| AT+ILRR = <n> | Set command controls whether or not the +ILRR:<rate> information text is transmitted from the MODULE to the DTE. Parameter: <n> 0 - local port speed rate reporting disabled (default) 1 - local port speed rate reporting enabled Note: this information if enabled is sent upon connection. |
| AT+ILRR? | Read command returns active setting of port speed rate reporting information. |
| AT+ILRR=? | Test command returns all supported values of the parameter <n> |
| Reference | V25ter |

2.5.2.14 +ICF - DTE - modem character format

| +ICF – DTE-modem character format | |
|--|--|
| AT+ICF=<format> [,<parity>] | <p>Set command defines the asynchronous character framing to be used when auto-bauding is disabled.</p> <p>Parameters:</p> <p><format> - determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame.</p> <ul style="list-style-type: none"> 0 – auto-detection 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 4 - 7 Data, 2 Stop 5 - 7 Data, 1 Parity, 1 Stop <p><parity> - determines how the parity bit is generated and checked, if present</p> <ul style="list-style-type: none"> 0 - Odd 1 - Even <p>Examples:</p> <p>AT+ICF = 0 - auto detect AT+ICF = 1 - 8N2 AT+ICF = 2,0 - 8O1 AT+ICF = 2,1 - 8E1 AT+ICF = 3 - 8N1 (default) AT+ICF = 5,0 - 7O1 AT+ICF = 5,1 - 7E1</p> |
| AT+ICF? | Read command returns current settings for sub-parameters <format> and <parity>. |
| AT+ICF=? | Test command returns the ranges of values for the parameters <format> and <parity> |
| Reference | V25ter |

2.5.3 Call Control

2.5.3.1 D – dial

| D – dial | |
|--|---|
| ATD <number>[:;] | <p>Execution command starts a call to the phone number given as parameter.</p> <p>If semicolon is not omitted, a VOICE call to the given number is performed, regardless of the current value of the connection mode set by AT+FCLASS command.</p> <p>Parameter: <number> - phone number to be dialled</p> <p>Note: Type of call (data, fax or voice) depends on last AT+FCLASS setting. The numbers accepted are 0-9 and *,#, "A", "B", "C", "D", "+". For backwards compatibility with landline modems modifiers "T", "P", "R", "W", "!", "@" are accepted but have no effect.</p> |
| ATD><str>[:;] | <p>Issues a call to phone number which corresponding alphanumeric field is <str>.</p> <p>If the semicolon is not omitted a VOICE call is performed.</p> <p>Parameter: <str> - alphanumeric field corresponding to phone number</p> |
| ATD><mem><n>[:;] | <p>Issues a call to phone number in memory <mem> entry location <n> (available memories may be queried with AT+CPBS=?).</p> <p>If the semicolon is not omitted a VOICE call is performed.</p> <p>Parameters: <mem> - memory storage SM - SIM phonebook FD - SIM fixed dialling-phonebook LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list</p> <p><n> - entry location</p> |
| ATD> <n> [:;] | <p>Issues a call to phone number in entry location <n> of the active phonebook memory storage (see AT+CPBS).</p> <p>If the semicolon is not omitted a VOICE call is performed.</p> <p>Parameter: <n> - active phonebook entry location.</p> |
| ATDL | <p>Issues a call to the last number dialled.</p> |
| ATDS=<nr>[:;] | <p>Issues a call to the number stored in the MODULE internal phonebook position number <nr>.</p> <p>If the semicolon is not omitted a VOICE call is performed.</p> <p>Parameter: <nr> - internal phonebook position to be called (See commands &N and &Z)</p> |

| D – dial | |
|---|---|
| ATD<number>l[;] ATD<number>i[;] | Issues a call [voice if ; is added] overwriting the CLIR supplementary service subscription default value for this call l - invocation, restrict CLI presentation i - suppression, allow CLI presentation |
| ATD<number>G[;] ATD<number>g[;] | Issues a call [voice if ; is added] checking the CUG supplementary service information for the current call. Refer to +CCUG command. |
| ATD* <gprs_sc>[* <addr>] [* <L2P>][* <cid>]]] # | This command is specific of GPRS functionality and causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN. Parameters: <gprs_sc> - GPRS Service Code, a digit string (value 99) which identifies a request to use the GPRS <addr> - string that identifies the called party in the address space applicable to the PDP. <L2P> - a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used: 1 - PPP Other values are reserved and will result in an ERROR response to the Set command. <cid> - a digit which specifies a particular PDP context definition (see +CGDCONT command). |
| Example | To dial a number in SIM phonebook entry 6: ATD>SM6 OK To have a voice call to the 6-th entry of active phonebook: ATD>6; OK To call the entry with alphanumeric field "Name": ATD>"Name"; OK |
| Reference | V25ter. |

2.5.3.2 T - set tone dial

| T – set tone dial | |
|--------------------------|---|
| ATT | Set command has no effect is included only for backward compatibility with landline modems. |
| Reference | V25ter. |

2.5.3.3 P - set pulse dial

| P – set pulse dial | |
|---------------------------|---|
| ATP | Set command has no effect is included only for backward compatibility with landline modems. |
| Reference | V25ter. |

2.5.3.4 A - answer

| A – answer | |
|-------------------|---|
| ATA | Execution command is used to answer to an incoming call if automatic answer is disabled. Note: This command MUST be the last in the command line and must be followed immediately by a <CR> character. |
| Reference | V25ter. |

2.5.3.5 H - disconnect

| H – disconnect | |
|-----------------------|---|
| ATH | Execution command is used to close the current conversation (voice, data or fax). Note: When a data conversation is active the device is in on-line mode commands are not sensed, instead characters are sent to the other interlocutor. To issue this command you must be in command mode operation, hence escape sequence (see register S2) may be required before issuing this command, otherwise if &D1 option is active, DTR pin should be tied low to return in the command mode. When a voice call is active, no escape sequence is needed. |
| Reference | V25ter. |

2.5.3.6 O - return to On Line Mode

| O – return to on line mode | |
|-----------------------------------|---|
| ATO | Execution command is used return to On-line mode from command mode. If there's no connection active returns ERROR. Note: After the issue of this command, if the device is in conversation, to send other commands to the device you must return to command mode by issuing the escape sequence or lowering DTR if &D1 option is active. |
| Reference | V25ter. |

2.5.3.7 &G - guard tone

| | |
|----------------------------|---|
| &G – guard tone | |
| AT&G | Set command has no effect is included only for backward compatibility with landline modems. |

2.5.3.8 &Q – sync/async mode

| | |
|---------------------------------|---|
| &Q – sync/async mode | |
| AT&Q | Set command has no effect is included only for backward compatibility with landline modems. |

2.5.4 Modulation control

2.5.4.1 +MS - modulation control

| +MS – modulation control | |
|--|--|
| AT+MS = <modulation> , <automode> , <min_speed> , <max_speed> | Set command has no effect is included only for backward compatibility with landline modems. Parameter: <modulation> V21 V22 V22B V23C V32 V34 <automode> 0 1 <min_speed>, <max_speed> 0 - unspecified 300..14400 - speed in bps Note: to change modulation requested use +CBST command. |
| AT+MS? | Read command returns the current value of modulation, automode, min_speed, max_speed parameters. |
| AT+MS=? | Test command returns all supported values of the modulation, automode, min_speed, max_speed parameters. |

2.5.4.2 %E - line quality monitor and auto retrain or fallback / fall-forward

| %E – enable/disable line quality monitor and auto retrain or fallback / fall-forward | |
|---|---|
| AT%E<n> | Execution command has no effect and is included only for backward compatibility with landline modems. |

2.5.5 Compression control

2.5.5.1 +DS - set data compression

| +DS – set data compression | |
|-----------------------------------|--|
| AT+DS = <n> | Set command sets the V42 compression parameter. Parameter: <n> 0 - no compression, it is currently the only supported value |
| AT+DS? | Read command returns current value of the data compression parameter. |
| AT+DS=? | Test command returns all supported values of the parameter <n> |
| Reference | V25ter |

2.5.5.2 +DR - data compression reporting

| +DR – data compression reporting | |
|---|--|
| AT+DR = <n> | Set command controls the data compression reporting upon connection. Parameter: <n> 0 - no data compression reporting is displayed at the connection 1 - a data compression report message is sent by the device upon connection |
| AT+DR? | Read command returns current value of n. +DR: <n>. the current value of <n> |
| AT+DR=? | Test command returns all supported values of the parameter n <n>: +DR: (0, 1) the range for <n> |
| Reference | V25ter |

2.5.6 Break control

2.5.6.1 \B - transmit break to remote

| \B – transmit break to remote | |
|--------------------------------------|--|
| AT\b | Execution command has no effect is included only for backward compatibility with landline modems |

2.5.6.2 \K - break handling

| \K – break handling | |
|----------------------------|---|
| AT\K<n> | Execution command has no effect is included only for backward compatibility with landline modems <n> = 1.. 5 |

2.5.6.3 \N – operating mode

| \N – operating mode | |
|----------------------------|--|
| AT\N | Execution command has no effect is included only for backward compatibility with landline modems |

2.5.7 S parameters

2.5.7.1 S0 - number of rings to auto answer

| S0 – number of rings to auto answer | |
|--|---|
| ATS0 [=<n>] | <p>Set command sets the number of rings required before device automatically answers an incoming call.</p> <p>Parameter: <n> -number of rings 0 - auto answer disabled (default) 1..255 – number of rings required before automatic answer</p> <p>Note: if parameter is omitted the command has no effect and the answer is OK</p> |
| ATS0? | <p>Read command returns the current value of S0 parameter.</p> <p>Note: the format of the number in output has always 3 digits, left-filled with 0s.</p> |
| ATS0=? | <p>Test command returns the range for <char>; moreover, the format of the numbers in output has always 3 digits, left-filled with 0s</p> <p>ATS0=? 000-255</p> |
| Reference | V25ter |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.2 S1 - ring counter

| S1 – ring counter | |
|--------------------------|---|
| ATS1? | <p>S1 is incremented each time the device detects the ring signal of an incoming call. S1 is cleared as soon as no ring occur.</p> <p>Read command returns the value of this parameter.</p> |
| ATS1=? | <p>Test command returns the range for <char></p> <p>ATS1=? 000-255</p> |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.3 S2 - escape character

| S2 – escape character | |
|------------------------------|---|
| ATS2 = <char> | <p>S2 holds the decimal value of the ASCII character used as escape character.</p> <p>Set command sets this character equal to <char>. Parameter: <char> - escape character 0..255</p> <p>Note: The escape sequence consists of three escape characters preceded by n ms of idle and followed by m ms of idle. Note: Default 43 (+)</p> |
| ATS2? | Read command returns the current value of S2 parameter. |
| ATS2=? | <p>Test command returns the range for <char> ATS2=? 000-255</p> |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.4 S3 - carriage return character

| S3 – carriage return character | |
|---------------------------------------|---|
| ATS3 = <char> | <p>Set command sets the command line and result code terminator character in decimal ASCII.</p> <p>Parameter: <char> - carriage return character 0..127</p> <p>Note: Default 13 (Carriage Return)</p> |
| ATS3? | Read command returns the current value of S3 parameter. |
| ATS3=? | <p>Test command returns the range for <char> ATS3=? 000-127</p> |
| Reference | V25ter |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.5 S4 - line feed character

| S4 – line feed character | |
|---------------------------------|---|
| ATS4=<char> | Set command sets the character recognized as line feed character. Parameter: <char> - line feed character 0..127 Note: Default 10 (Line Feed). The line feed character is output after carriage return character if verbose result codes are used (V1 option used). |
| ATS4? | Read command returns the current value of S4 parameter. |
| ATS4=? | Test command returns the range for <char> ATS4=? 000-127 |
| Reference | V25ter |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.6 S5 - backspace character

| S5 – backspace character | |
|---------------------------------|--|
| ATS5=<char> | Set command sets the decimal ASCII character that is recognized as backspace character. Parameter: <char> - backspace character 1..127 Note: Default 8 (backspace) |
| ATS5? | Read command returns the current value of S5 parameter. |
| ATS5=? | Test command returns the range for <char> ATS5=? 000-127 |
| Reference | V25ter |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.7 S7 - wait time for carrier, silence or dial tone

| S7 – wait time for carrier, silence or dial tone | |
|---|---|
| ATS7=<sec> | Set command S7 sets the length of time in seconds that the device will wait for carrier before hanging up the call. The timer is started when the device finishes dialing (originate), or 2 seconds after going off-hook. Parameter: <sec> 1..255 Note: Default is 60 seconds |
| ATS7? | Read command returns the current value of S7 parameter. |
| ATS7=? | Test command returns the range for <sec> ATS7=? 001-255 |
| Reference | V25ter |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.8 S12 - escape prompt delay

| S12 – escape prompt delay | |
|----------------------------------|--|
| ATS12=<time> | Set command defines the guard time of silence before and after the escape sequence in order to accept it as a valid one. Parameter: <time> - expressed in fiftieth of second 20..255 Note: default is 50 (1 second) |
| ATS12? | Read command returns the current value of S12 parameter. |
| ATS12=? | Test command returns the range for <time> ATS12=? 020-255 |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.9 S25 - delay to DTR off

| S25 –delay to DTR off | |
|------------------------------|---|
| ATS25=<time> | Set command defines how long the DTR must be off to consider the high to low transition as a valid one. Parameter: <time> - expressed in hundredth of second 0..255 Note: default is 5 (5 hundredth of second) |
| ATS25? | Read command returns the current value of S25 parameter. |
| ATS25=? | Test command returns the range for <time>, the output depends on the choice made through AT#SELINT command. |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.10 S30 - disconnect inactivity timer

| S30 –disconnect inactivity timer | |
|---|--|
| ATS30=<min> | Set command defines the inactivity timeout timer value in minutes. The Device disconnects if no characters are exchanged for a time period of at least S30 minutes. Parameter: <min> - expressed in minutes 0 - means inactivity timer disabled, hence no disconnect on inactivity feature is enabled. 1..255 – inactivity timeout value Note: Default is 0 |
| ATS30? | Read command returns the current value of S30 parameter. |
| ATS30=? | Test command returns the range for <min>, the output depends on the choice made through AT#SELINT command. |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.5.7.11 S38 - delay before forced hang up

| S38 –delay before forced hang up | |
|---|---|
| ATS38=<sec> | Set command defines the time in seconds that the device waits after a hang up command for transmit buffer to be emptied. 255 value means that disconnecting is done only after complete buffer upload. Parameter: <sec> - expressed in seconds 0..255 Note: Default is 20 s |
| ATS38? | Read command returns the current value of S38 parameter. |
| ATS38=? | Test command returns the range for <sec> ATS38=? 000-255 |
| Note | Nb: the output of the test command is without command echo and parenthesis |

2.6 ETSI GSM 07.07 AT Commands

2.6.1 General

2.6.1.1 +CGMI - request manufacturer identification

| +CGMI – request manufacturer identification | |
|--|--|
| AT+CGMI | Execution command returns the device manufacturer identification code without command echo. The output depends on the choice made through AT#SELINT command. |
| Reference | GSM 07.07 |

2.6.1.2 +CGMM - request model identification

| +CGMM – request model identification | |
|---|--|
| AT+CGMM | Execution command returns the device model identification code without command echo. |
| Reference | GSM 07.07 |

2.6.1.3 +CGMR - request revision identification

| +CGMR – request revision identification | |
|--|---|
| AT+CGMR | Execution command returns device software revision number without command echo. |
| Reference | GSM 07.07 |

+CGSN - request product serial number identification

| +CGSN – request product serial number identification | |
|---|--|
| AT+CGSN | Execution command returns the product serial number, identified as the IMEI of the mobile, without command echo. |
| Reference | GSM 07.07 |

2.6.1.4 +CSCS - select TE character set

| +CSCS – select TE character set | |
|--|---|
| AT+CSCS [=<chset>] | <p>Set command sets the current character set used by the device. Parameter: <chset> - character set "IRA" - ITU-T.50 "8859-1" - ISO 8859 Latin 1 "PCCP437" - PC character set Code Page 437</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CSCS? | Read command returns the current value of the active character set. |
| AT+CSCS=? | <p>Test command returns the supported values of the parameter <chset>. For compatibility with previous versions, Test command returns +CSCS: ("IRA")</p> <p>An enhanced version of Test command has been defined: AT+CSCS=??, that provides the complete range of values for <chset>.</p> |
| AT+CSCS=?? | Enhanced test command returns the supported values of the parameter <chset> |
| Reference | GSM 07.07 |

2.6.1.5 +CIMI - request international mobile subscriber identity (IMSI)

| +CIMI – request international mobile subscriber identify (IMSI) | |
|--|--|
| AT+CIMI | <p>Execution command returns the value of the Internal Mobile Subscriber Identity stored in the SIM without command echo. Note: A SIM card must be present in the SIM card housing, else the command returns ERROR.</p> |
| Reference | GSM 07.07 |

2.6.2 Call control

2.6.2.1 +CBST - select bearer service type

| +CBST – select bearer service type | |
|---|--|
| AT+CBST [=<speed>, <name>, <ce>] | <p>Set command selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated. Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls (refer +CSNS).</p> <p>Parameters:</p> <p>The default values of the sub-parameters are manufacturer specific since they depend on the purpose of the device and data services provided by it. Not all combinations of these sub-parameters are supported. The supported values are:</p> <p><speed></p> <ul style="list-style-type: none"> 0 – autobauding (automatic selection of the speed) 1 - 300 bps (V.21) 2 - 1200 bps (V.22) 3 - 1200/75 bps (V.23) 4 - 2400 bps (V.22bis) 6 - 4800 bps (V.32) 7 - 9600 bps (V.32) 14 - 14400 bps (V.34) 65 - 300 bps (V.110) 66 - 1200 bps (V.110) 68 - 2400 bps (V.110 or X.31 flag stuffing) 70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing) <p><name></p> <ul style="list-style-type: none"> 0 - data circuit asynchronous <p><ce></p> <ul style="list-style-type: none"> 0 – transparent 1 - non transparent <p>Default is +CBST = 0,0,1</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same of Read command.</p> |
| AT+CBST? | Read command returns current value of the parameters <speed>,<name> and <ce> |
| AT+CBST=? | Test command returns the supported range of values of the parameters. |
| Reference | GSM 07.07 |
| Note | The settings AT+CBST=14,0,0 AT+CBST=75,0,0 are not supported. |

2.6.2.2 +CRLP - radio link protocol

| +CRLP – radio link protocol | |
|--|---|
| AT+CRLP=<iws>,<mws>,<T1>,<N2>,<ver> | Radio link protocol (RLP) parameters used when non-transparent data calls are originated may be altered with Set command. Parameters: <iws> = 1...61 - IWF window Dimension <mws> = 1...61 - MS window Dimension <T1> = 39...255 – acknowledge timer (10 ms units). <N2> = 1...255 – retransmission attempts <ver> = 0 - protocol Version The default values are: 61,61,78,6,0 |
| AT+CRLP? | Read command returns the current value of the RLP protocol parameters. |
| AT+CRLP=? | Test command returns supported range of values of the RLP protocol parameters. |
| Reference | GSM 07.07 |

2.6.2.3 +CR - service reporting control

| +CR – service reporting control | |
|--|--|
| AT+CR=<mode> | Set command controls whether or not intermediate result code +CR: <serv> is returned from the TA to the TE. If enabled, the intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before the intermediate result code CONNECT is transmitted. Parameter: <mode> 0 - disables intermediate result code report (default) 1 - enables intermediate result code report This command replaces V.25ter [14] command Modulation Reporting Control +MR, which is not appropriate for use with a GSM terminal. The result code parameter <serv> has the meaning: ASYNC - asynchronous transparent SYNC - synchronous transparent REL ASYNC - asynchronous non-transparent REL SYNC - synchronous non-transparent. |
| AT+CR? | Read command returns current intermediate report setting |
| AT+CR=? | Test command returns the supported range of values of the parameter <mode>. |
| Reference | GSM 07.07 |

2.6.2.4 +CEER - extended error report

| +CEER – extended error report | |
|--------------------------------------|---|
| AT+CEER | Execution command reports a information text regarding some error condition that may occur: - the failure in the last unsuccessful call setup (originating or answering) - the last call release - the last unsuccessful GPRS attach or unsuccessful PDP context activation, - the last GPRS detach or PDP context deactivation. Note: if none of this condition has occurred since power up then No Error condition is reported |
| AT+CEER? | Read command reports a information text regarding some error condition that may occur |
| AT+CEER=? | Test command has no effect; the answer is OK |
| Reference | GSM 07.07 |

2.6.2.5 +CRC - cellular result codes

| +CRC – cellular result codes | |
|-------------------------------------|---|
| AT+CRC=<mode> | Set command controls whether or not the extended format of incoming call indication is used. When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING:<type> instead of the normal RING. <mode> 0 - disables extended format reporting (default) 1 - enables extended format reporting Note: On +CRING indication <type> parameter is the call type: <type> - call type: ASYNC asynchronous transparent data SYNC - synchronous transparent data REL ASYNC - asynchronous non-transparent data REL SYNC - synchronous non-transparent data FAX - facsimile (TS 62) VOICE - normal voice (TS 11) |
| AT+CRC? | Read command returns current value of the parameter <mode>. |
| AT+CRC=? | Test command returns supported values of the parameter <mode>. |
| Reference | GSM 07.07 |

2.6.2.6 +CSNS - single numbering scheme

| +CSNS – single numbering scheme | |
|--|---|
| AT+CSNS= <mode> | <p>Set command selects the bearer or tele-service to be used when mobile terminated single numbering scheme call is established. Parameter values set with +CBST command shall be used when <mode> equals to a data service.</p> <p>Parameter: <mode> 0 - voice (default) 2 - fax (TS 62) 4 - data</p> <p>Note: if +CBST parameter is set to a value that is not applicable to single numbering calls, ME/TA shall map the value to the closest valid one. E.g. if user has set <speed>=71, <name>=0 and <ce>=1 (non-transparent asynchronous 9600 bps V.110 ISDN connection) for mobile originated calls, ME/TA shall map the values into non-transparent asynchronous 9600 bps V.32 modem connection when single numbering scheme call is answered.</p> |
| AT+CSNS? | Read command returns current value of the parameter <mode>. |
| AT+CSNS=? | Test command returns supported values of the parameter <mode>. |
| Reference | GSM 07.07 |

2.6.3 Network service handling

2.6.3.1 +CNUM - subscriber number

| +CNUM – subscriber number | |
|----------------------------------|--|
| AT+CNUM | <p>Execution command returns the subscriber number i.e. the phone number of the device that is stored in the SIM card.</p> <p>Note: the returned number format is: +CNUM: [<alpha>] , <number> , <type> <alpha> - <u>optional</u> alphanumeric string associated to <number> <number> - string containing the phone number in the format <type> <type> - type of number: 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme</p> |
| Reference | GSM 07.07 |

2.6.3.2 +COPN – read operator names

| +COPN – read operator names | |
|------------------------------------|---|
| AT+COPN | <p>Execution command returns the list of operator names from the ME. The output depends on the choice made through AT#SELINT command.</p> |
| Reference | GSM 07.07 |

2.6.3.3 +CREG - network registration report

| +CREG – network registration report | |
|--|--|
| AT+CREG [=<mode>] | <p>Set command enables/disables network registration reports depending on the parameter <mode>.</p> <p>Parameter: <mode> 0 - disable network registration unsolicited result code (default) 1 - enable network registration unsolicited result code 2 - enable network registration unsolicited result code with network Cell identification data</p> <p>If mode=1, network registration result code reports: +CREG: <stat> where <stat> 0 - not registered, ME is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but ME is currently searching a new operator to register to 3 - registration denied 4 - unknown 5 - registered, roaming</p> <p>If mode=2, network registration result code reports: +CREG: <stat>[,<Lac>,<Ci>] where: <Lac> is the Local Area Code for the currently registered on cell <Ci> is the Cell Id for the currently registered on cell Note: <Lac> and <Ci> are reported only if mode=2 and the mobile is registered on some network cell.</p> <p>Note: If sub-parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CREG? | <p>Read command reports the <mode> and <stat> parameter values in the format: +CREG: <mode>,<stat>[,<Lac>,<Ci>] Note: <Lac> and <Ci> are reported only if mode=2 and the mobile is registered on some network cell.</p> |
| AT+CREG=? | <p>Test command returns the range of supported <n></p> |
| Example | <pre> AT OK at+creg? +CREG: 0,2 (the MODULE is in network searching state) OK at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,2 </pre> |

| +CREG – network registration report | |
|--|---|
| | <pre> OK at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,1 (the MODULE is registered) OK at+creg? +CREG: 0,1 OK </pre> |
| Reference | GSM 07.07 |

2.6.3.4 +COPS - operator selection

| +COPS – operator selection | |
|--|---|
| AT+COPS= [<mode> [,<format> [,<oper>]]] | <p>Set command forces an attempt to select and register the GSM network operator.</p> <p><mode> parameter defines whether the operator selection is done automatically or it is forced by this command to operator <oper>.</p> <p>The operator <oper> shall be given in format <format>.</p> <p>Parameters:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - automatic choice (the parameter <oper> will be ignored) (default) 1 - manual choice unlocked (network is kept as long as available, then it can be changed with some other suited networks to guarantee the service) 2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1, 4 or 5 is issued 3 - set only <format> parameter (the parameter <oper> will be ignored) 4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered 5 - manual choice locked (network is kept fixed, if the chosen network is not available, then the mobile has no service) <p><format></p> <ul style="list-style-type: none"> 0 - alphanumeric long form (max length 16 digits) 1 - alphanumeric short form 2 - Numeric 5 digits [country code (3) + network code (2)] <p><oper>: network operator in format defined by <format> parameter.</p> <p>Note: If all sub-parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+COPS? | <p>Read command returns current value of <mode>, <format> and <oper> in format <format>; if no operator is selected, <format> and <oper> are omitted</p> <p>+COPS: <mode>[, <format>, <oper>]</p> |
| AT+COPS=? | <p>Test command returns a list of quadruplets, each representing an operator present in the network; the command outputs as many rows as the number of quadruplets, each of them in the format:</p> <p>+COPS: (<stat> ,<oper (in format=0)>,"",<oper (in format=2)>)</p> <p>where <stat> indicates the availability of the operator:</p> <p><stat></p> <ul style="list-style-type: none"> 0 - unknown 1 - available 2 - current 3 - forbidden |

| +COPS – operator selection | |
|-----------------------------------|---|
| | <p>Note: since with this command a network scan is done, this command may require some seconds before the output is given.</p> <p>Note: The value of parameter <oper (in format=0)> depends on the choice made through AT#SELINT command.</p> |
| Reference | GSM 07.07 |

2.6.3.5 +CLCK - facility lock/ unlock

| +CLCK – facility lock/unlock | |
|---|---|
| <p>AT+CLCK=<fac>, <mode>[,<passwd> [,<class>]]</p> | <p>Execution command is used to lock or unlock a ME or a network facility.</p> <p>Parameters:</p> <p><fac> - facility</p> <p>"SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued)</p> <p>"AO"- BAOC (Barr All Outgoing Calls)</p> <p>"OI" - BOIC (Barr Outgoing International Calls)</p> <p>"OX"- BOIC-exHC (Barr Outgoing International Calls except to Home Country)</p> <p>"AI" - BAIC (Barr All Incoming Calls)</p> <p>"IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country)</p> <p>"AB" - All Barring services (applicable only for <mode>=0)</p> <p>"AG" - All outGoing barring services (applicable only for <mode>=0)</p> <p>"AC" - All inComing barring services (applicable only for <mode>=0)</p> <p>"FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>)</p> <p>"PN" - network Personalisation</p> <p>"PU" - network subset Personalisation</p> <p><mode> - defines the operation to be done on the facility</p> <p>0 - unlock facility</p> <p>1 - lock facility</p> <p>2 - query status</p> <p><passwd>: shall be the same as password specified for the facility from the DTE user interface or with command Change Password +CPWD</p> <p><class>: represents the class of information of the facility (sum of bits)</p> <p>)</p> <p>1- voice (telephony)</p> <p>2 - data (refers to all bearer services)</p> <p>4 - fax (facsimile services)</p> <p>Note: when <mode> = 2 and command successful, it returns:</p> <p>+clck: <status></p> <p>where <status> is the current status of the facility</p> <p><status>:</p> <p>0 - not active</p> <p>1 - active</p> |

| | |
|-------------------------------------|--|
| +CLCK – facility lock/unlock | |
| AT+CLCK=? | Test command reports all the facility supported by the device. |
| Reference | GSM 07.07 |
| Note | The improving command <code>at@clck</code> has been defined. |

2.6.3.6 @CLCK - facility lock/ unlock

| | |
|--|--|
| @CLCK – facility lock/unlock | |
| AT@CLCK=<fac>, <mode>[,<passwd> [,<class>]] | <p>Execution command is used to lock or unlock a ME on a network facility.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <fac> - facility <ul style="list-style-type: none"> "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO" - BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for <mode>=0) "AG" - All outGoing barring services (applicable only for <mode>=0) "AC" - All inComing barring services (applicable only for <mode>=0) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>) "PN" - network Personalisation "PU" - network subset Personalisation <p><mode>: defines the operation to be done on the facility</p> <ul style="list-style-type: none"> 0 - unlock facility 1 - lock facility 2 - query status <p><passwd>: shall be the same as password specified for the facility from the DTE user interface or with command Change Password +CPWD</p> <p><class>: represents the class of information of the facility (sum of bits)</p> <ul style="list-style-type: none"> 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) () <p>Note: when <mode> = 2 and command successful, it returns:</p> <p>@clck: <status></p> <p>The status query output format is different from the AT+CLCK one if the facility can have different class of information.</p> <p>Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:</p> <pre>AT@clck="AO",2 @clck: <status>,1</pre> |

| @CLCK – facility lock/unlock | |
|-------------------------------------|---|
| | @clck: <status>,2 @clck: <status>,4 where <status> is the current status of the facility <status>: 0 - not active 1 - active |
| AT@CLCK=? | Test command reports all the facilities supported by the device. |
| Reference | GSM 07.07 |

2.6.3.7 +CPWD - change facility password

| +CPWD – change facility password | |
|--|---|
| AT+CPWD=<fac>, <oldpwd>, <newpwd> | Execution command changes the password for the facility lock function defined by command Facility Lock +CLCK . Parameters: <fac> - facility “sc” – SIM (PIN request) “AB” – All barring services “P2” – SIM PIN2 <oldpwd>, <newpwd> : string type <oldpwd> shall be the same as password specified for the facility from the ME user interface or with command +CPWD. <newpwd> is the new password Note: parameter <oldpwd> is the old password while <newpwd> is the new one. |
| AT+CPWD=? | Test command returns a list of pairs (<fac>,<pwdlength>) which presents the available facilities and the maximum length of their password (<pwdlength>) |
| Reference | GSM 07.07 |

2.6.3.8 +CLIP - calling line identification presentation

| +CLIP – calling line identification presentation | |
|---|---|
| AT+CLIP [=<n>] | <p>Note: this command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI (Calling Line Identity) of the calling party when receiving a mobile terminated call.</p> <p>Set command enables or disables the presentation of the CLI at the TE.</p> <p>It has no effect on the execution of the supplementary service CLIP in the network.</p> <p>Parameters:</p> <p><n></p> <ul style="list-style-type: none"> 0 - disables CLI indication (default) 1 - enables CLI indication <p>If enabled the device reports after each RING the response: +CLIP:<number>,<type>[,<sub-address>,<satype>[,<alpha> [,<CLI validity>]]]</p> <p>where:</p> <ul style="list-style-type: none"> <number>: calling line number <type>: type of address octet in integer format <ul style="list-style-type: none"> 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme <subaddress>: string type sub-address of format specified by <satype> <satype>: type of sub-address octet in integer format <alpha> : optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected either with command Select TE character set +CSCS or @CSCS. <CLI validity>: <ul style="list-style-type: none"> 0 - CLI valid 1 - CLI has been withheld by the originator. 2 - CLI is not available due to inter-working problems or limitation or originating network. <p>Note: If sub-parameter is omitted then the behaviour of Set command is the same of Read command.</p> |
| AT+CLIP? | <p>Read command returns the presentation status of the CLI in the format</p> <p>+CLIP: <n>, <m></p> <p>where:</p> <p><n></p> <ul style="list-style-type: none"> 0 - CLI presentation disabled |

| +CLIP – calling line identification presentation | |
|---|---|
| | <p>1 - CLI presentation enabled</p> <p><m> - status if the CLIP service on the GSM network</p> <p>0 - CLIP not provisioned</p> <p>1 - CLIP provisioned</p> <p>2 - unknown (e.g. no network is present)</p> <p>Note: This command issues a status request to the network; hence it may take a few seconds to give the answer due to the time needed to exchange data with it.</p> |
| AT+CLIP=? | Test command returns the supported values of the parameter <n> |
| Reference | GSM 07.07 |
| Note | The command changes only the report behaviour of the device; it does not change CLI supplementary service setting on the network. |

2.6.3.9 +CLIR - calling line identification restriction

| +CLIR – calling line identification restriction | |
|--|---|
| AT+CLIR [=<n>] | <p>This command refers to CLIR-service (GSM 02.81) that allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call.</p> <p>Set command overrides the CLIR subscription when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command.</p> <p>Parameter:</p> <p><n> is the facility status on the Mobile</p> <p>0 - CLIR facility according to CLIR service network status</p> <p>1 - CLIR facility active (CLI not sent)</p> <p>2 - CLIR facility not active (CLI sent)</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command.</p> |
| AT+CLIR? | <p>Read command gives the default adjustment for all outgoing calls (<n>) and also triggers an interrogation of the provision status of the CLIR service (<m>), where</p> <p><n> is the facility status on the Mobile</p> <p>0 - CLIR facility according to CLIR service network status</p> <p>1 - CLIR facility active (CLI not sent)</p> <p>2 - CLIR facility not active (CLI sent)</p> <p><m> is the facility status on the Network</p> <p>0 - CLIR service not provisioned</p> <p>1 - CLIR service provisioned permanently</p> <p>2 - Unknown (e.g. no network present, etc.)</p> <p>3 - CLI temporary mode presentation restricted</p> <p>4 - CLI temporary mode presentation allowed</p> |
| AT+CLIR=? | Test command reports the supported values of the parameter <n>. |

| | |
|-----------|---|
| Reference | GSM 07.07 |
| Note | This command set the default behaviour of the device in outgoing calls. |

2.6.3.10 +CCFC - call forwarding number and conditions

| +CCFC – call forwarding number and condition | |
|--|--|
| AT+CCFC= <reason> , <cmd> [, <number> [, <type> [, <class>] [,, <time>]]] | <p>Execution command controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported.</p> <p>Parameters:</p> <p><reason></p> <ul style="list-style-type: none"> 0 – unconditional 1 - mobile busy 2 - no reply 3 - not reachable 4 - all calls (not with query command) 5 - all conditional calls (not with query command) <p><cmd></p> <ul style="list-style-type: none"> 0 – disable 1 - enable 2 - query status 3 – registration 4 – erasure <p><number>: phone number of forwarding address in format specified by <type> parameter</p> <p><type>: type of address byte in integer format :</p> <ul style="list-style-type: none"> 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme <p><class>: is a sum of integers each representing a class of information which the command refers; default 7 (voice + data + fax)</p> <p><class></p> <ul style="list-style-type: none"> 1 - voice (telephony) 2 - data 4 - fax (facsimile services, from SW release C) <p><time>: is the time in seconds after which the call is diverted if "no reply" reason is chosen. Valid only for "no reply" reason.</p> <p>Note: when <cmd> = 2 and command successful, it returns: +ccfc: <status>, <class> [, <number> [, <type> [, <time>]]] where <status> is the current status of the network service</p> <p><status>:</p> <ul style="list-style-type: none"> 0 - not active 1 - active <p><time>: - 1...30 when "no reply" option for reason is enabled or queried, this gives the time in <i>seconds</i> to wait before call is forwarded, default value is 20.</p> |

| +CCFC – call forwarding number and condition | |
|---|--|
| | The other parameters are as seen before. |
| AT+CCFC=? | Test command reports supported values for the parameter <reason>. |
| Reference | GSM 07.07 |
| Note | When querying the status of a network service (<cmd>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. |

2.6.3.11 +CCWA - call waiting

| +CCWA – call waiting | |
|--|---|
| AT+CCWA [= [<n> [, <cmd> [, <class>]]]] | <p>Set command allows the control of the call waiting supplementary service. Activation, deactivation, and status query are supported.</p> <p>Parameters:</p> <p><n>: enables/disables call waiting presentation status: 0 - disable 1 - enable</p> <p><cmd> enables/disables or queries the service at network level: 0 - disable 1 -enable 2 - query status</p> <p><class>: is a sum of integers each representing a class of information which the command refers; default 7 (voice + data + fax) 1 - voice (telephony) 2 - data 4 - fax (facsimile services)</p> <p>The response to the query command is in the form: +CCWA=<status>,<class> Where <status> represents the status of the service: 0 - inactive 1 - active</p> <p><class> is the class of calls the service status refers to. Note: if parameter <cmd> is omitted then network is not interrogated. Note2: In the query command the class parameter must not be issued. Note3: The difference between call waiting report disabling (AT+CCWA = 0,1,7) and call waiting service disabling (AT+CCWA = 0,0,7) is that in the first case the call waiting indication is sent to the device by network but this last one does not report it to the DTE; instead in the second case the call waiting indication is not generated by the network. Hence the device results busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party.</p> |

| | |
|-----------------------------|---|
| +CCWA – call waiting | |
| | Note4: The command AT+CCWA=1,0 is a non sense and must not be issued. Note: If all parameters are omitted then the behaviour of Set command is the same of Read command. |
| AT+CCWA? | Read command reports the current value of the parameter <n>. |
| AT+CCWA=? | Test command reports the supported values for the parameter <n>. |
| Reference | GSM 07.07 |

2.6.3.12 +CHLD - call holding services

| | |
|--------------------------------------|--|
| +CHLD – call holding services | |
| AT+CHLD=<n> | Execution command controls the network call hold service. With this service it is possible to disconnect temporarily a call and keep it suspended while it is retained by the network, contemporary it is possible to connect another party or make a multiparty connection. The action of the command depends on the value of the parameter Parameter: <n> 0 - Releases all pending calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. (Only from version D) 1 - Releases all active calls (if present), and accepts or reconnects the pending or waiting call 1X - Releases a specific active call X 2 - Suspends (into pending status) the active call and accepts or reconnects the waiting or pending call. 2X - Suspends (into pending status) all the active call except call X which will be or remains connected. (Only from version D) 3 - Adds an held call to the conversation "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until they are released. New calls take the lowest available number. Where both a held and a waiting call exist, the above procedures apply to the waiting call (i.e. not to the held call) in conflicting situation. |
| AT+CHLD=? | Test command returns the list of supported <n>s. +CHLD: (0, 1, 2, 3) Note: consider what has been written about the Set command relating the actions on a specific call (-> x). |
| Reference | GSM 07.07 |
| Note | ONLY for VOICE calls |

2.6.3.13 +CUSD - unstructured supplementary service data

| |
|--|
| +CUSD – unstructured supplementary service data |
|--|

| +CUSD – unstructured supplementary service data | |
|--|--|
| AT+CUSD [=<n> [,<str>[,<dcs>]]] | <p>Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]).</p> <p>Parameters:</p> <p><n>: is used to disable/enable the presentation of an unsolicited result code: +CUSD: <m>[,<str>,<dcs>] to the TE.</p> <p>0 - disable the result code presentation in the DTA 1 - enable the result code presentation in the DTA</p> <p><dcs> indicates which alphabet is used (Data Coding Scheme),refer either to command Select TE Character Set +CSCS or @CSCS.</p> <p><str> - USSD-string (when <str> parameter is not given, network is not interrogated)</p> <ul style="list-style-type: none"> - if TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set according to rules of GSM 07.05 - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character Π (GSM 23) is presented as 17 (IRA 49 and 55)) - if<dcs> indicates that 8-bit data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) <p><m>:</p> <p>0 - no further user action required, hence network initiated USSD-Notify, or no further information needed after mobile initiated operation. 1 - further user action required, hence network initiated USSD-Request, or further information needed after mobile initiated operation 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out</p> <p>Warning: In case of successful mobile initiated operation, DTA waits the USSD response from the network and sends it to the DTE before the final result code. This will block the AT command interface for the period of the operation.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same of Read command.</p> |
| AT+CUSD? | Read command reports the current value of the parameter <n> |
| AT+CUSD=? | Test command reports the supported values for the parameter <n>: 0 - result code presentation in the TA disabled 1 - result code presentation in the TA enabled |
| Reference | GSM 07.07 |
| Note | Only mobile initiated operations are supported |

2.6.3.14 +CAOC - advice of charge

| +CAOC – advice of charge | |
|--|--|
| AT+CAOC [=<mode>] | <p>Set command controls the advice of charge service; the command also includes the possibility to enable an unsolicited event reporting of the CCM information.</p> <p>If unsolicited reporting is enabled DTE sends the result code +CCCM: <ccm></p> <p>When the CCM value changes, but not more than every 10 seconds. <ccm> - call meter value hexadecimal representation (3 byte)</p> <p>Parameter: <mode> 0 - CCM (Call Meter) read request 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command.</p> |
| AT+CAOC? | Read command reports the value of parameter <mode> in the format: +CAOC: <mode> |
| AT+CAOC=? | Test command reports the supported values for <mode> parameter. |
| | <p>Note: the representation format doesn't match the v.25ter§5.7.3 "Information text formats for test commands". The output is: +CAOC: 0,1, 2</p> |
| Reference | GSM 07.07 |
| Note | +CAOC command uses the CCM of the device internal memory, not the CCM stored in the SIM. The difference is that the internal memory CCM is reset at power up, while the SIM CCM is reset only on user request. Advice of Charge values stored in the SIM (ACM, ACMmax, PUCT) can be accessed with commands +CACM, +CAMM and +CPUC. |

2.6.3.15 +CLCC - list current calls

| +CLCC – list current calls | |
|-----------------------------------|--|
| AT+CLCC | <p>Execution command returns the list of current calls and their characteristics in the format: +CLCC:<id>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>] for each active call, where: <id> - call identification number</p> <p><dir> - call direction 0 - mobile originated call 1 - mobile terminated call</p> <p><stat> - state of the call 0 - active 1 - held 2 - dialing (MO call) 3 - alerting (MO call) 4 - incoming (MT call) 5 - waiting (MT call)</p> <p><mode> - call type 0 – voice 1 – data 2 – fax 9 – unknown</p> <p><mpty> - multiparty call flag 0 - call is not one of multiparty (conference) call parties 1 - NOT SUPPORTED</p> <p><number>: phone number in format specified by <type></p> <p><type>: type of phone number byte in integer format 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme</p> <p>Note: If no call is active then only OK message is sent. This command is useful in conjunction with command +CHLD to know the various call status for call holding.</p> |
| Reference | GSM 07.07 |

2.6.3.16 +CSSN – SS Notification

| +CSSN – SS notification | |
|---------------------------------------|---|
| AT+CSSN=<n> [,<m>] | <p>It refers to supplementary service related network initiated notifications. Set command enables/disables the presentation of notification result codes from TA to TE.</p> <p>Parameters:</p> <p><n>: sets the +CSSI result code presentation status 0 disable 1 enable</p> <p><m>: sets the +CSSU result code presentation status 0 disable 1 enable</p> <p>When <n>=1 and a supplementary service notification are received after a mobile originated call setup, an unsolicited code +CSSI: <code1> is sent to TE before any other MO call setup result codes. When <m>=1 and a supplementary service notification are received during a mobile terminated call setup or during a call unsolicited result code +CSSU: <code2> is sent to TE.</p> <p><code1>:</p> <ul style="list-style-type: none"> 1 some of the conditional call forwarding are active 2 call has been forwarded 3 call is waiting 5 outgoing calls are barred 6 incoming calls are barred <p><code2>:</p> <ul style="list-style-type: none"> 0 this is a forwarded call (MT call setup) 2 call has been put on hold (during a voice call) 3 call has been retrieved (during a voice call) |
| AT+CSSN? | <p>Read command reports the current value of the parameters in the format: +CSSN: <n>,<m></p> |
| AT+CSSN=? | <p>Test command reports the supported range of values for the parameters <n>,<m></p> |
| Reference | GSM 07.07 |

2.6.3.17 +CCUG – Closed User Group supplementary service control

| +CCUG – Closed User Group supplementary service control | |
|--|---|
| AT+CCUG[=<n> [,<index> [,<info>]]] | <p>Set command allows control of the Closed User Group supplementary service [GSM 02.85].</p> <p>Parameters:</p> <p><n> 0 – disable CUG temporary mode. 1 – enable CUG temporary mode. SET command with <n>=1 enables to control the CUG information on the air interface as a default adjustment for all following outgoing calls.</p> <p><index> 0..9 - CUG index 10 - no index (preferential CUG taken from subscriber data)</p> <p><info> 0 - no information 1 - suppress Outgoing Access (OA) 2 - suppress preferential CUG 3 - suppress OA and preferential CUG</p> <p>Note: If all parameters are omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CCUG? | <p>Read command reports the current value of the parameters in the format:</p> <p>+CCUG: <n>,<index>,<info></p> |
| AT+CCUG=? | <p>Test command reports the supported range of values for the parameters <n>,<index>, <info></p> |
| Reference | GSM 07.07 |

2.6.4 Mobile Equipment control

2.6.4.1 +CPAS - phone activity status

| +CPAS – phone activity status | |
|--------------------------------------|--|
| AT+CPAS | Execution command reports the device status in the form +CPAS: <pas> where <pas> - phone activity status 0 - ready (Device allows commands from TA/TE) 1 - unavailable (Device does not allow commands from TA/TE) 2 - unknown (Device is not guaranteed to respond to instructions) 3 - ringing (Device is ready for commands from TA/TE, but the ringer is active) 4 - call in progress (Device is ready for commands from TA/TE, but a call is in progress) |
| AT+CPAS? | Read command has the same effect as Execution command. |
| AT+CPAS=? | Test command reports the supported range of values of <pas>. Although it is an execution command, the TEST command has been defined and it returns the supported range of values for <pas>. This is what the 07.07 requires. |
| Example | <pre> ATD03282131321; OK AT+CPAS? +CPAS: 3 (the called phone is ringing) OK AT+CPAS? +CPAS: 3 OK AT+CPAS? +CPAS: 4 (the called phone has answered to your call) OK ATH OK </pre> |
| Reference | GSM 07.07 |

2.6.4.2 +CFUN Set phone functionality (Power Saving Management)

| +CFUN – power saving management | |
|--|---|
| AT+CFUN=<fun> | <p>Set command enables/disables the power saving function. If enabled it reduces the power consumption during the idle time, thus allowing a longer standby time with a given battery capacity.</p> <p>Parameter: <fun>: is the power saving function mode 1 - Mobile full functionality with power saving disabled (default) 5 - Mobile full functionality with power saving enabled</p> <p>Note: To place the telephone in power saving mode, set the <fun> parameter at value = 5 and the line DTR (RS232) must be set to OFF. Once in power saving, the CTS line switch to the OFF status to signal that the telephone is really in power saving condition. During the power saving condition, before sending any AT command on the serial line, the DTR must be enabled and it must be waited for the CTS (RS232) line to go in ON status. Until the DTR line is ON, the telephone will not return back in the power saving condition.</p> <p>Note: The power saving function does not affect the network behavior of the MODULE; even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call incomes during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code</p> |
| AT+CFUN? | <p>Read command reports the power saving status in the form: +CFUN: <fun> where <fun> - power saving status 1 - power saving disabled (default) 5 - power saving enabled</p> <p>Note: The phone functionality remains always FULL.</p> |
| AT+CFUN=? | <p>Test command returns the list of supported <fun>s +CFUN: (list of supported <fun>s) +CFUN: (1, 5)</p> |
| Reference | GSM 07.07 |

2.6.4.3 +CPIN - enter PIN

| +CPIN – enter PIN | |
|--|--|
| AT+CPIN [=<pin>[,<newpin>]] | <p>Set command sends to the device a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN required is SIM PUK or SIM PUK2, the <newpin> is required. This second pin, <newpin>, will replace the old pin in the SIM.</p> <p>The command may be used to change the SIM PIN by sending it with both parameters <pin> and <newpin> when PIN request is pending; if no PIN request is pending the command will return an error code and to change the PIN the command +CPWD must be used instead.</p> <p>Parameters: <pin> <newpin></p> <p>Note: the only commands which are accepted when device is pending SIM PIN, SIM PUK, or PH-SIM are: +CGMI, +CGMM, +CGMR, +CGSN, D112; (emergency call), +CPAS, +CPIN. To check the status of the PIN request use the command AT+CPIN?</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CPIN? | <p>Read command reports the PIN/PUK/PUK2 request status of the device in the form: +CPIN:<code> where: <code> is the PIN/PUK/PUK2 request status code READY - device is not pending for any password SIM PIN - device is waiting SIM PIN to be given SIM PUK - device is waiting SIM PUK to be given SIM PIN2 - device is waiting SIM PIN2 to be given; this <code> is returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17) SIM PUK2 - device is waiting SIM PUK2 to be given; this <code> is returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18) PH-NET PIN - device is waiting network personalization password to be given PH-NETSUB PIN - device is waiting network subset personalization password to be given</p> <p>Note: Pin pending status at start-up depends on PIN facility setting, to change or query the default power up setting use either the AT+CLCK=SC,<mode>, <pin> command or the AT@CLCK=SC,<mode>, <pin> command.</p> |
| Example | <pre>AT+CMEE=1 OK AT+CPIN?</pre> |

| +CPIN – enter PIN | |
|--------------------------|---|
| | <pre>+CME ERROR: 10 (error because you have to insert the SIM) AT+CPIN? +CPIN: READY (this response is after you have inserted the SIM) OK</pre> |
| Reference | GSM 07.07 |

2.6.4.4 +CSQ- signal quality

| +CSQ – signal quality | |
|------------------------------|---|
| AT+CSQ | <p>Execution command reports received signal quality indicators in the form +CSQ:<rss>,<ber> where <rss> - received signal strength indication 0 - 113 dBm or less 1 - 111 dBm 2...30 - 109dBm ... -53 dBm / 2 dBm per step 31 - 51 dBm or greater 99 - not known or not detectable</p> <p><ber> - bit error rate % 0 - less than 0.2 % 1 - 0.2% a 0.4% 2 - 0.4% a 0.8% 3 - 0.8% a 1.6% 4 - 1.6% a 3.2% 5 - 3.2% a 6.4% 6 - 6.4% a 12.8% 7 - more than 12.8% 99 - not known or not detectable</p> <p>Note: this command should be used instead of the AT%Q and AT%L commands, since GSM relevant parameters are the radio link ones and no line is present, hence %Q %L and have no meaning.</p> |
| AT+CSQ? | Read command has the same effect as Execution command. |
| AT+CSQ=? | Test command returns the supported range of values of the parameters <rss>and <ber>. |
| Reference | GSM 07.07 |

2.6.4.5 +CPBS - select phonebook memory storage

| +CPBS – select phonebook memory storage | |
|--|--|
| AT+CPBS [=<storage>] | <p>Set command selects phonebook memory storage <storage>, which will be used by other phonebook commands.</p> <p>Parameter: <storage> "SM" - SIM phonebook "FD" - SIM fixed dialling-phonebook (only phase 2/2+ SIM) "LD" - SIM last-dialling-phonebook (+CPBW and +CPBF are not applicable for this storage) "MC" - device missed (unanswered received) calls list (+CPBW and +CPBF are not applicable for this storage) "RC" - ME received calls list (+CPBW and +CPBF are not applicable for this storage)</p> <p>Note: If parameter is omitted then Set command has the same behaviour as Read command.</p> |
| AT+CPBS? | Read command returns the actual values of the parameter <storage>, the number of occupied records and the maximum index number |
| AT+CPBS=? | Test command returns the supported range of values of the parameters <storage>. |
| Reference | GSM 07.07 |
| Note | The presentation format of the TEST command output is the set of available values for <storage>, each of them enclosed in parenthesis. |

2.6.4.6 +CPBR - read phonebook entries

| +CPBR – read phonebook entries | |
|--|--|
| AT+CPBR= <index1>[,<index2 >] | <p>Execution command returns phonebook entries in locations number from <index1> to <index2> from the current phonebook memory storage selected with +CPBS. If <index2> is omitted, only location <index1> is returned.</p> <p>Parameters: <index1>, <index2></p> <p>The response format is: +CPBR: <index>,<number>,<type>,<name> where <index> - the current position number of the PB index (to see the range of values use +CPBR=?) <number> - the phone number stored in the format <type> <type> - type of phone number byte in integer format 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme <name> - the alphanumeric text associated to the number (e.g. name of address)</p> <p>Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an ME error, +CME ERROR: <err> is returned.</p> |
| AT+CPBR=? | <p>Test command returns the supported range of values of the parameters in the form +CPBR: (<minIndex> - <maxIndex>),<nlength>,<tlength> where <minIndex> - the minimum <i>index</i> number <maxIndex>- the maximum <i>index</i> number <nlength> - maximum <i>number</i> field length <tlength> - maximum <i>name</i> field length</p> <p>Note: remember to select the PB storage with +CPBS command before issuing PB commands.</p> |
| Reference | GSM 07.07 |

2.6.4.7 +CPBF - find phonebook entries

| +CPBF – find phonebook entries | |
|---------------------------------------|--|
| AT+CPBF = <text> | <p>Execution command issues a search for the phonebook records that have the <i>text</i> sub-string at the start of the <i>name</i> field and returns a report in the form</p> <p>+CPBF: <index>,<number>,<type>,<name></p> <p>where index, number, type and name have the same meaning than in the command +CPBR report.</p> <p>If no PB records satisfy the search criteria then an ERROR message is reported.</p> <p>Parameter: <text></p> <p>Note: text is NOT case sensitive and may or not be included in double brackets.</p> |
| AT+CPBF=? | <p>Test command reports the maximum lengths of fields <number> and <name> in the PB entry in the form:</p> <p>+CPBF: <max_number_length>,<max_name_length></p> |
| Reference | GSM 07.07 |

2.6.4.8 +CPBW - write phonebook entry

| +CPBW – write phonebook entry | |
|--|--|
| AT+CPBW = [<index>] [,<number> [,<type>[,<name>]]] | <p>Execution command stores at the position <index> a Phonebook record defined by <number>, <type> and <name> parameters</p> <p>Parameters:</p> <p><index> - record position <number> - the phone number in the format <type></p> <p><type> - the type of number 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme</p> <p><name> - the text associated to the number.</p> <p>Note: If record number <index> already exists, it will be overwritten. If only <index> is given, the record number <index> is deleted. If <index> is omitted, the number <number> is stored in the first free phonebook location. Text in the <name> field and number in the <number> field may or may not be included in double brackets.</p> |
| AT+CPBW=? | <p>Test command returns the supported range of values of the parameters in the form +CPBW: (<minIndex> - <maxIndex>), <nlength>, <tlength> where <minIndex> - the minimum <i>index</i> number <maxIndex>- the maximum <i>index</i> number <nlength> - maximum <i>number</i> field length (<minsupportedtype>, <maxsupportedtype>), <tlength> - maximum <i>name</i> field length</p> <p><minsupportedtype> = 129 – international numbering scheme; <maxsupportedtype> = 145 – national numbering scheme.</p> |
| Reference | GSM 07.07 |
| Note | Remember to select the PB storage with +CPBS command before issuing PB commands. |

2.6.4.9 +CCLK - Clock Management

| +CCLK – Clock Management | |
|--|--|
| AT+CCLK [=<time>] | <p>Set command sets the real-time clock of the ME.</p> <p>Parameter: <time> - current alarm time in the format : "yy/MM/dd, hh:mm:ss±zz" yy – year (two last digits are mandatory), range is 00..99 MM – month (two last digits are mandatory), range is 01..12 dd – day (two last digits are mandatory), range is 01..31 (if the month MM has less than 31 days, the clock will be set for the next month) hh – hour (two last digits are mandatory), range is 00..23 mm – minute (two last digits are mandatory), range is 00..59 ss – seconds (two last digits are mandatory), range is 00..59 ±zz – time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -48..+48</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CCLK? | <p>Read command returns the current setting of the real-time clock, in the format <time>.</p> <p>Note: the three last characters of <time> are not returned by +CCLK? because the ME doesn't support time zone information.</p> |
| Example | <pre>AT+CCLK="02/09/07,22:30:00+00" OK AT+CCLK? +CCLK: 02/09/07,22:30:25 OK</pre> |
| Reference | GSM 07.07 |

2.6.4.10 +CALA - Alarm Management

| +CALA – Alarm Management | |
|--|---|
| AT+CALA= [<time>[,<n> [,<type>[,<text>]]]] | <p>Set command stores in the internal Real Time Clock the current alarm time and settings defined by the parameters <time>, <n>, <type>, <text>.</p> <p>When the RTC time reaches the alarm time then the alarm starts, the behaviour of the MODULE depends upon the setting <type> and if the device was already ON at the moment when the alarm time had come.</p> <p>Parameter:</p> <p><time> - current alarm time in the same format as defined for +CCLK command: "yy/MM/dd,hh:mm:ss±zz"</p> <p><type> - alarm behaviour type</p> <ul style="list-style-type: none"> 0 - reserved for other equipment use. 1 - The MODULE simply wakes up fully operative as if the ON/OFF pin had been pressed. If the device is already ON at the alarm time, then it does nothing. 2 - The MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE issues an unsolicited code every 3s: +ALARM: <text> Where <text> is the other +CALA parameter previously set. The device keeps on sending the unsolicited code every 3s until a #WAKE or #SHDN command is received or a 90s timeout occurs. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down. (default) 3 - The MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE starts playing the alarm tone on the selected path for the ringer (see command #SRP) The device keeps on playing the alarm tone until a #WAKE or #SHDN command is received or a 90s timeout occurs. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down. 4 - The MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE brings the pin GPIO6 high, provided its <direction> has been set to alarm output, and keeps it in this state until a #WAKE or #SHDN command is received or a 90s timeout occurs. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down. 5 - The MODULE will make both the actions as for type=2 and type=3. 6 - The MODULE will make both the actions as for type=2 and type=4. 7 - The MODULE will make both the actions as for type=3 and |

| +CALA – Alarm Management | |
|---------------------------------|--|
| | <p>type=4.</p> <p><n> = 0 - index of the alarm The only value supported for <n> is 0.</p> <p><text> - unsolicited alarm code text string In the case that <type> is equal to 2 or 5 or 6, then the unsolicited text parameter <text> can be set by this parameter.</p> <p>Note: The "alarm mode" is indicated by hardware pin CTS to the ON status and DSR to the OFF status, while the "power saving" status is indicated by CTS - OFF and DSR - OFF status. The normal operating status is indicated by DSR - ON.</p> <p>During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the #WAKE and #SHDN, every other command must not be issued during this state.</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CALA? | <p>Read command reports the current alarm time stored in the internal Real Time Clock, if present, in the format: +CALA: <time>,<n>,<type>[,<text>]</p> |
| AT+CALA=? | <p>Test command reports the supported range of values for the parameters <time>,<n>,<type> and <text> maximum length</p> |
| Example | <p>AT+CALA="02/09/07,23:30:00+00" OK</p> |
| Reference | GSM 07.07 |

2.6.4.11 +CALM - alert sound mode

| +CALM – alert sound mode | |
|-----------------------------------|--|
| AT+CALM = <mode> | <p>Set command is used to select the general alert sound mode of the device.</p> <p>Parameter: <mode> 0 - normal mode 1 - silent mode (no sound will be generated by the device, except for alarm sound) 2 - stealth mode (no sound will be generated by the device)</p> <p>Note: if silent mode is selected then incoming calls will not produce alerting sounds but only the message RING or +CRING.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CALM? | <p>Read command returns the current value of parameter <mode> +CALM: <mode></p> |
| AT+CALM=? | <p>Test command returns the supported values for the parameter <mode> as compound value.</p> <p>Note: the output is compatible with previous version of the code and it is different from the actual range of values: +CALM: (0,1)</p> <p>An enhanced version of the Test command, providing a generic answer, has been defined: AT+CALM=??</p> |
| AT+CALM=?? | <p>Enhanced test command returns the supported values for the parameter <mode> as a generic answer: +CALM: (0-2)</p> <p>The meaning of each possible setting has been explained before, when describing the Set command.</p> |
| Reference | GSM 07.07 |

2.6.4.12 +CRSL - ringer sound level

| +CRSL – ringer sound level | |
|-------------------------------------|--|
| AT+CRSL [=<level>] | <p>Set command is used to select the incoming call ringer sound level of the device.</p> <p>Parameter: <level> - ringer sound level 0 - Off 1 - low 2 - middle 3 – high 4 – progressive</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT+CRSL? | <p>Read command reports the current <level> setting of the call ringer in the format: +CRSL: <level></p> |
| AT+CRSL=? | <p>Test command reports <level> supported values as compound value.</p> <p>Note: If AT#SELINT=0 the output is: +CRSL: (0-3) if AT#SELINT=1 the output is: +CRSL: (0-4)</p> <p>An enhanced version of the Test command, providing a generic answer, has been defined: AT+CRSL=??</p> |
| AT+CRSL=?? | <p>Enhanced test command returns the supported values for the parameter <mode> as a generic answer: +CRSL: (0-4)</p> <p>The meaning of each possible setting has been explained before, when describing the Set command.</p> |
| Reference | GSM 07.07 |

2.6.4.13 +CLVL - loudspeaker volume level

| +CLVL – loudspeaker volume level | |
|---|---|
| AT+CLVL [=<level>] | <p>Set command is used to select the volume of the internal loudspeaker audio output of the device.</p> <p>Parameter: <level> - loudspeaker volume varies between 0 (minimum) and a maximum level that can be read by issuing the test command AT+CLVL=?</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CLVL? | Read command reports the current <level> setting of the loudspeaker volume in the format: +CLVL: <level> |
| AT+CLVL=? | Test command reports <level> supported values range in the format: +CLVL: (0-maximum value) |
| Reference | GSM 07.07 |

2.6.4.14 +CMUT - microphone mute control

| +CMUT – microphone mute control | |
|--|---|
| AT+CMUT[= <n>] | <p>Set command enables/disables the muting of the microphone audio line depending on n parameter value</p> <p>Parameter: <n > 0 - microphone active 1 - microphone muted</p> <p>Note: this command mutes/activates microphone audio paths, internal mic and external mic.</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CMUT? | Read command reports the selected microphone (internal/external) mute status in the format: +CMUT: <n> |
| AT+CMUT=? | Test command reports the supported values for <n> parameter. |
| Reference | GSM 07.07 |

2.6.4.15 +CACM - accumulated call meter

| +CACM – accumulated call meter | |
|---|---|
| AT+CACM [= <pwd>] | Set command resets the SIM Accumulated Call Meter (ACM). Internal memory CCM remains unchanged. Parameter: <pwd> - PIN2 password Note: to access this command PIN2 password is required Note: If the parameter is omitted the behaviour of Set command is the same as Read command. |
| AT+CACM? | Read command reports the current value of the SIM ACM in the format +CACM: <n> Note: the value <n> is in units whose price and currency is defined with command +CPUC |
| Reference | GSM 07.07 |

2.6.4.16 +CAMM - accumulated call meter maximum

| +CAMM – accumulated call meter maximum | |
|--|--|
| AT+CAMM [= <acmmax> , <pwd>] | Set command sets the Advice of Charge related Accumulated Call Meter ACM maximum value in SIM (see also +CACM command). This value represents the maximum number of home units allowed to be consumed by the subscriber. When ACM reaches <acmmax> value further calls are prohibited. SIM PIN2 is required to set the value. Parameter: <acmmax>- maximum number of units allowed to be consumed <pwd>- PIN2 password Note: The <acmmax> = 0 value disables the feature. Note: If the parameter is omitted the behaviour of Set command is the same as Read command. |
| AT+CAMM? | Read command reports the maximum value of ACM stored in SIM in the format: +CAMM : <acmmax> |
| Reference | GSM 07.07 |

2.6.4.17 +CPUC - price per unit and currency table

| +CPUC – price per unit and currency table | |
|--|--|
| AT+CPUC [=<currency>, <ppu>,<pwd>] | <p>Set command sets the values of Advice of Charge related price per unit and currency table in SIM. The price per Unit currency table information can be used to convert the home units (as used in commands +CAOC, +CACM and +CAMM) into currency units.</p> <p>Parameters:</p> <p><currency> - three-character currency code string (e.g. LIT, USD, DEM etc..)</p> <p><ppu> - price per unit string (dot is used as decimal separator) e.g. 1989.27</p> <p><pwd> - SIM PIN2</p> <p>Note: SIM PIN2 is required to set the values.</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CPUC? | Read command reports the current values of <currency> and <ppu> parameters in the format: +CACM : <currency>,<ppu> |
| Reference | GSM 07.07 |

2.6.4.18 +CCID – read ICCID (Integrated Circuit Card IDentification)

| +CCID – read ICCID | |
|---------------------------|--|
| AT+CCID | Execution command reads on SIM the ICCID (card identification number that provides a unique identification number for the SIM) |
| AT+CCID=? | Test command reports OK. |

2.6.5 Mobile equipment errors

2.6.5.1 +CMEE - report mobile equipment error

| +CMEE – report mobile equipment error | |
|--|---|
| AT+CMEE = <n> | <p>Set command enables/disables the report of result code. +CME ERROR: <err> as an indication of an error relating to the +Cxxx commands issued. When enabled, device related errors cause the +CME ERROR: <err> final result code instead of the default ERROR final result code. ERROR is anyway returned normally when the error message is related to syntax, invalid parameters, or DTE functionality. Parameter: <n> - enable flag 0 - disable +CME ERROR:<err> reports, use only ERROR report. 1 - enable +CME ERROR:<err> reports, with <err> in numeric format 2 - enable +CME ERROR: <err> reports, with <err> in verbose format</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CMEE? | <p>Read command returns the current value of sub-parameter <n> AT+CMEE? +CMEE: <n></p> |
| AT+CMEE=? | <p>Test command returns the range of values for sub-parameter <n> AT+CMEE=? +CMEE: 0, 1, 2</p> |
| Reference | GSM 07.07 |
| Note | The representation format of the Test command output is not included in parenthesis. |

2.6.6 Voice Control (TIA IS-101)

2.6.6.1 +VTS: - DTMF tones transmission

| +VTS – DTMF tones transmission | |
|---------------------------------------|---|
| AT+VTS=<DTMF> | Execution command allows the transmission of DTMF tones Parameter: <DTMF> - a single ASCII character in the set 0-9, #, *, A-D Note: this commands operates in voice mode only |
| AT+VTS=? | Test command returns +VTS(,),() |
| Reference | GSM 07.07 / TIA IS-101 |

2.6.7 Commands For GPRS

2.6.7.1 +CGACT - PDP context activate or deactivate

| + CGACT – PDP context activate or deactivate | |
|---|--|
| AT+CGACT [=<state>[, <cid>[, <cid>[,...]]]]] | Execution command is used to activate or deactivate the specified PDP context (s) Parameters: <state> - indicates the state of PDP context activation 0 - deactivated 1 - activated <cid> - a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) Note: If the parameter is omitted then the behaviour of Set command is the same as Read command |
| AT+CGACT? | Read command returns the current activation state for all the defined PDP contexts in the format: +CGACT: <cid>,<state> |
| AT+CGACT=? | Test command reports information on the supported PDP context activation states parameters in the format: +CGACT:(0-1) |
| Example | AT+CGACT? +CGACT: 1,1 OK AT+CGACT=1,1 OK |
| Reference | GSM 07.07 |

2.6.7.2 +CGATT - GPRS attach or detach

| + CGATT – GPRS attach or detach | |
|--|--|
| AT+CGATT [=<state>] | <p>Execution command is used to attach the terminal to, or detach the terminal from, the GPRS service depending on the parameter <state>.</p> <p>Parameter: <state> - indicates the state of GPRS attachment 0 - detached 1 – attached</p> <p>Note: If the parameter is omitted the behaviour of Execution command is the same as Read command.</p> |
| AT+CGATT? | Read command returns the current GPRS service state. |
| AT+CGATT=? | Test command requests information on the supported GPRS service states. |
| Example | <pre>AT+CGATT? +CGATT: 0 OK AT+CGATT=? +CGATT: (0 , 1) OK AT+CGATT=1 OK</pre> |
| Reference | GSM 07.07 |

2.6.7.3 +CGDATA - Enter data state

| + CGDATA – Enter data state | |
|--|--|
| AT+CGDATA = [<L2P> , [<cid> [, <cid> [, ...]]]] | Execution command causes to perform whatever actions are necessary to establish communication with the network using one or more GPRS PDP types. Parameters: <L2P> - string parameter that indicates the layer 2 protocol to be used "PPP" - PPP Point-to-point protocol If the value is omitted, the layer 2 protocol is unspecified <cid> - numeric parameter which specifies a particular PDP context definition (see +CGDCONT command). |
| AT+CGDATA=? | Test command requests information on the supported layer 2 protocols. Reports the supported <L2P> parameters values |
| Example | AT+CGDATA=? +CGDATA: "PPP" OK AT+CGDATA="PPP" , 1 OK |
| Reference | GSM 07.07 |
| Note | The representation format of the Test command output is not included in parenthesis |

2.6.7.4 +CGDCONT - define PDP context

| + CGDCONT – define PDP context | |
|--|--|
| AT+CGDCONT = [<cid> [,<PDP_type> [,<APN>[,<PDP_a ddr>, <d_comp> [,<h_comp>[,<pd1 > [,...[,pdN]]]]]]]] | <p>Set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid> Parameters:</p> <p><cid> - (PDP Context Identifier) : a numeric parameter which specifies a particular PDP context definition. The range of permitted values (minimum value = 1) is returned by the test form of the command.</p> <p><PDP_type> - (Packet Data Protocol type) : a string parameter which specifies the type of packet data protocol "IP" - Internet Protocol "PPP" - Point to Point Protocol</p> <p><APN> - (Access Point Name) : a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.</p> <p><PDP_address> - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated address may be read using the +CGPADDR command.</p> <p><d_comp> - a numeric parameter that controls PDP data compression 0 - off (default if value is omitted) 1 - on</p> <p><h_comp> - a numeric parameter that controls PDP header compression 0 - off (default if value is omitted) 1 - on</p> <p><pd1>, ... <pdN> - zero to N string parameters whose meanings are specific to the <PDP_type></p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CGDCONT? | Read command returns the current settings for each defined context in the format: +CGDCONT : <cid>,<PDP_type>,<APN>,<PDP_addr>, <d_comp>,<h_comp>,<pd1> [,...[,pdN]]]]]]]] |
| AT+CGDCONT=? | Test command returns values supported as a compound value |
| Example | AT+CGDCONT? +CGDCONT: 1, "IP", "uni.tim.it", "10.10.10.10",0,0 OK |

| | |
|---------------------------------------|---|
| + CGDCONT – define PDP context | |
| | <pre>AT+CGDCONT=? +CGDCONT: (1-3),"IP",,(0-1),(0-1) OK AT+CGDCONT=1, "IP", "uni.tim.it", "10.10.10.10",0,0 OK</pre> |
| Reference | GSM 07.07 |

2.6.7.5 +CGPADDR - show PDP address

| | |
|---|---|
| + CGPADDR – show PDP address | |
| <pre>AT+CGPADDR = [<cid> [,<cid> [,...]]]</pre> | <p>Execution command returns a list of PDP addresses for the specified context identifiers in the format:</p> <pre>+CGPADDR: <cid>,<PDP_addr> [<CR><LF>+CGPADDR: <cid>,<PDP_addr>]</pre> <p>Parameters:</p> <p><cid> - a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command). If no <cid> is specified, the addresses for all defined contexts are returned.</p> <p><PDP_address> - a string that identifies the terminal in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>,<PDP_addr> is omitted if none is available</p> |
| AT+CGPADDR=? | Test command returns a list of defined <cid>s. |
| Example | <pre>AT+CGPADDR=1,2 +CGPADDR = 1,"10.10.15.15" +CGPADDR = 2,"10.10.20.10" OK AT+CGPADDR=? +CGPADDR: (1-3) OK</pre> |
| Reference | GSM 07.07 |

2.6.7.6 +CGREG - GPRS network registration status

| + CGREG – GPRS network registration status | |
|---|---|
| AT+CGREG[=<n>] | <p>Set command controls the presentation of an unsolicited result code +CGREG: <stat> when <n>=1 and there is a change in the terminal GPRS network registration status, or an unsolicited code +CGREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell.</p> <p>Parameter: <n> - result code presentation mode 0 - disable network registration unsolicited result code 1 - enable network registration unsolicited result code +CGREG: <stat> 2 - enable network registration and location information unsolicited result code +CGREG:<stat>[,<lac>,<ci>]</p> <p>where: <lac> - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) <ci> - cell ID in hexadecimal format <stat> - registration status 0 - not registered, terminal is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but terminal is currently searching a new operator to register to 3 - registration denied 4 - unknown 5 - registered, roaming</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CGREG? | <p>Read command returns the status of result code presentation mode <n> and the integer <stat> which shows whether the network has currently indicated the registration of the terminal in the format: +CGREG:<n>,<stat>.</p> |
| AT+CGREG=? | <p>Test command returns supported values for parameter <n></p> |
| Reference | GSM 07.07 |
| Note | Future Software Release |

2.6.7.7 +CGQMIN - quality of service profile (minimum acceptable)

| + CGQMIN – quality of service profile (minimum acceptable) | |
|--|---|
| AT+CGQMIN = [<cid> [,<precedence > [,<delay> [,<reliability> [,<peak> [,<mean>]]]]] | <p>Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message</p> <p>Parameters: <cid> - PDP context identification (see +CGDCONT command).</p> <p>The following parameters are defined according to GSM 03.60: <precedence> - precedence class <delay> - delay class <reliability> - reliability class <peak> - peak throughput class <mean> - mean throughput class</p> <p>If a value is omitted for a particular class then this class is not checked.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CGQMIN? | <p>Read command returns the current settings for each defined context in the format: +CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> If no PDP context has been defined, it has no effect.</p> |
| AT+CGQMIN=? | <p>Test command returns as a compound value the type of the current PDP context and the supported values for the sub-parameters <precedence>, <delay>, <reliability>, <peak>, <mean></p> |
| Example | <pre>AT+CGQMIN=1,0,0,3,0,0 OK AT+CGQMIN? +CGQMIN: 1,0,0,5,0,0 OK AT+CGQMIN=? +CGQMIN: "IP", (0-3), (0-4), (0-5), (0-9), (0-19,31) OK</pre> |
| Reference | GSM 07.07 |

2.6.7.8 +CGQREQ - quality of service profile (requested)

| + CGQREQ – quality of service profile (requested) | |
|--|--|
| AT+CGQREQ = [<cid> [,<precedence > [,<delay> [,<reliability> [,<peak> [,<mean>]]]]] | <p>Set command allows to specify a Quality of Service Profile that is used when the terminal sends an Activate PDP Context Request message to the network. It specifies a profile for the context identified by the (local) context identification parameter, <cid>.</p> <p>Parameters: <cid> - PDP context identification (see +CGDCONT command).</p> <p>The following parameters are defined according to GSM 03.60: <precedence> - precedence class <delay> - delay class <reliability> - reliability class <peak> - peak throughput class <mean> - mean throughput class</p> <p>If a value is omitted for a particular class then this class is not checked.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CGQREQ? | <p>Read command returns the current settings for each defined context in the format: +CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> If no PDP context has been defined, it has no effect.</p> |
| AT+CGQREQ=? | <p>Test command returns as a compound value the type of the current PDP context and the supported values for the sub-parameters <precedence>, <delay>, <reliability>, <peak>, <mean></p> |
| Example | <pre>AT+CGQREQ? +CGQREQ: 1,0,0,3,0,0 OK AT+CGQREQ=1,0,0,3,0,0 OK AT+CGQREQ=? +CGQREQ: "IP", (0-3), (0-4), (0-5), (0-9), (0-19,31) OK</pre> |
| Reference | GSM 07.07 |

2.6.8 Commands For Battery Charger

2.6.8.1 +CBC - Battery Charge

| + CBC – Battery Charge | |
|-------------------------------|---|
| AT+CBC | <p>Execution command returns the current Battery Charge status in the format: +CBC: <bc>,<bcl> Parameter: <bc> - battery status 0 - Me is powered by the battery 1 - ME has a battery connected, and charger pin is being powered 2 - ME does not have a battery connected 3 - Recognized power fault, calls inhibited</p> <p><bcl> - battery charge level 0 - battery is exhausted, or ME does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged.</p> <p>NOTE: <bc>=1 indicates that the battery charger supply is inserted and the battery is being recharged if necessary with it. Supply for ME operations is taken anyway from VBATT pins. NOTE: without battery/power connected on VBATT pins or during a power fault the unit is not working, therefore values 3 and 4 will never appear.</p> |
| AT+CBC=? | <p>Test command returns parameter values supported as a compound value. For compatibility with previous versions the commands returns: If AT#SELINT=0 +CBC: (0-2),(0-100) If AT#SELINT=1 +CBC: (0-3),(0-100) An enhanced version of Test command has been implemented: AT+CBC=?? in order to give a generic answer.</p> |
| AT+CBC=?? | <p>Enhanced test command returns parameter values supported as a generic answer: +CBC: (0-3),(0-100) The meaning of each possible setting has been explained before, when describing the Set command.</p> |
| Example | <pre>AT+CBC +CBC: 0,75 OK</pre> |
| Note | <p>The ME does not make differences between being powered by a battery or by a power supply on the VBATT pins, so it is not possible to distinguish between these two cases.</p> |
| Reference | GSM 07.07 |

2.7 ETSI GSM 07.05 AT Commands for SMS and CB services

2.7.1 General configuration

2.7.1.1 +CSMS - select message service

| +CSMS – select message service | |
|---|---|
| AT+CSMS [=<service>] | <p>Set command selects the SMS & CB services command syntax. It returns the types of messages supported by the ME:</p> <p>AT+CSMS=<service> +CSMS: <service>,<mt>,<mo>,<bm></p> <p>Parameter: <service> 0 - SMS syntax as defined in GSM-03.40 and GSM-03.41. AT commands are compatible with GSM 07.05 Phase 2. 1 - SMS syntax as defined in GSM-03.40 and GSM-03.41. AT commands are compatible with GSM 07.05 Phase 2+</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CSMS? | <p>Read command reports the value of the current parameters in the format: +CSMS: <service>,<mt>,<mo>,<cb> where: <service> - message syntax 0 - SMS syntax as defined in GSM-03.40 and GSM-03.41. AT commands are compatible with GSM 07.05 Phase 2. 1 - SMS syntax as defined in GSM-03.40 and GSM-03.41. AT commands are compatible with GSM 07.05 Phase 2+</p> <p><mt> - Mobile Terminated Messages 0 - not supported 1 – supported</p> <p><mo> - Mobile Originated Messages 0 - not supported 1 – supported</p> <p><cb> - Cell Broadcast Messages 0 - not supported 1 - supported</p> |
| AT+CSMS=? | <p>Test command reports the supported value of the parameter <service>.</p> |
| Reference | GSM 07.05 |

2.7.1.2 +CPMS - preferred message storage

| +CPMS – preferred message storage | |
|---|---|
| AT+CPMS= <memr>,<memw> ,<mems> | <p>Set command selects memory storages <memr>, <memw> and <mems> to be used for reading, writing, sending and storing received SMS.</p> <p>Parameter:</p> <p><memr> - memory storage for read and delete SMS commands "SM" - SIM SMS memory storage "ME" - Mobile Equipment internal storage (read only, no delete)</p> <p><memw> - memory storage for write and send SMS commands "SM" - SIM SMS memory storage</p> <p><mems> - memory storage for received SMS storing "SM" - SIM SMS memory storage</p> <p>The command returns the memory storage status in the format: +CPMS:<usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals> <usedr> - number of SMS stored into <memr> <totalr> - max number of SMS that <memr> can contain <usedw> - number of SMS stored into <memw> <totalw> max number of SMS that <memw> can contain <useds> - number of SMS stored into <mems> <totals> max number of SMS that <mems> can contain</p> <p>Note: The only memory storage for writing and sending supported is the SIM internal memory "SM", so <memw> = <mems> = "SM". Note: the received class 0 SMS are stored in the "ME" memory regardless the <mems> setting and they are automatically deleted at power off.</p> <p>Note: If all parameters are omitted the behaviour of Set command is the same as Read command.</p> |
| AT+CPMS? | <p>Read command reports the message storage status in the format: +CPMS:<memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>,<mems>,<useds>,<totals> where <memr> , <memw> and <mems> are the selected storage memories for reading, writing and storing respectively.</p> |
| AT+CPMS=? | <p>Test command reports the supported values of the SMS storage memories in the format: +CPMS: ("ME","SM"),("SM"),("SM")</p> |
| Example | <pre>AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK (you have 5 SMS SIM positions occupied of 10)</pre> |
| Reference | GSM 07.05 |

2.7.1.3 +CMGF - message format

| +CMGF –message format | |
|--|--|
| AT+CMGF [=<mode>] | Set command selects the SMS format to be used in reading and writing messages. Parameter: <mode> 0 - PDU as defined in GSM 3.40 and GSM 3.41 (default) 1 – text Note: If parameter is omitted the behaviour of Set command is the same as Read command. |
| AT+CMGF? | Read command reports the current value of the parameter <mode> . |
| AT+CMGF=? | Test command reports the supported value of <mode> parameter. +CMGF:<mode> |
| Reference | GSM 07.05 |

2.7.1.4 +CSMP – Set parameters in text mode

| +CSMP –set parameters in text mode | |
|---|---|
| AT+CSMP=<fo>,<vp>,<pid>,<dc> | Set command is user to select values for additional parameters for storing and sending SMS when the text mode is used (+CMGF=1) Parameters: <fo> - message format, like defined for the first octet of message according to GSM 3.40 <vp> - Message validity period, numerical if in relative format or string if in absolute format according to GMS 3.40 <pid> - Protocol Identifier, defined by GSM 3.40, in numerical format <dc>> - Data coding Scheme, defined by GSM 3.40, in numerical format Note: If all parameters are omitted the behaviour of Set command is the same as Read command. |
| AT+CSMP? | Read command reports the current setting in the format: +CSMP: < fo>,<vp>,<pid>,<dc> |
| AT+CSMP=? | Test command reports the supported range of values for <fo>,<vp>,<pid>,<dc> parameters. |
| Example | Set the parameters for an outgoing message with 24 hours of validity period and default properties: AT+CSMP=17,167,0,0 OK |
| Reference | GSM 07.05 |

2.7.1.5 +CSDH – Show parameters in text mode

| +CSDH –show parameters in text mode | |
|--|---|
| AT+CSDH [=<show>] | Set command show the additional parameters of received or stored SMS when the text mode is used (+CMGF=1). Parameter: <show> 0 - no additional parameters are shown 1 - parameters set by the +CSCA and + CSMP commands are shown and the length, sender/addressee address of SMS when +CMT, +CMGL, +CMGR commands are utilized Note: If parameter is omitted then the behaviour of Set command is the same as Read command. |
| AT+CSDH? | Read command reports the current setting in the format: +CSDH: <show> |
| AT+CSDH=? | Test command reports the supported range of values for the parameter <show> |
| Reference | GSM 07.05 |

2.7.1.6 +CSAS – Save setting text mode

| +CSAS –set saving text mode | |
|---|--|
| AT+CSAS [=<profile>] | Execution command saves setting which have been made by the +CSCA and +CSMP commands in local non volatile memory (or in the SIM if it has a dedicated storage for this purpose). Parameter: <profile>: 0...n - manufacturer specific profile number where settings are to be stored; n is in the range 0..255. The number 0 corresponds to the non volatile memory, the others correspond to the SIM storage (if available). Note: If parameter is omitted the settings are saved in the non volatile memory. |
| AT+CSAS=? | Test command returns the possible range of values for the parameter <profile>. |
| Reference | GSM 07.05 |

2.7.1.7 +CRES – Restore text mode settings

| +CRES –restore text mode settings | |
|--|---|
| AT+CRES [=<profile>] | <p>Execution command restores any setting saved by +CSAS command for +CSCA and +CSMP commands in local non volatile memory (or in the SIM if it has a dedicated store for this purpose).</p> <p>Parameter: <profile>: 0...n – manufacturer specific profile number where settings are to be stored; n is in the range 0..255 The number 0 corresponds to the non volatile memory, the others correspond to the SIM storage (if available). Note: If parameter is omitted the command restores the settings saved in the non volatile memory.</p> |
| AT+CRES=? | Test command returns the possible range of values for the parameter <profile>. |
| Reference | GSM 07.05 |

2.7.1.8 +CSCB – Select Cell Broadcast Message types

| +CSCB –select Cell Broadcast Message types | |
|---|---|
| AT+CSCB= <mode>[,<mids>[, <dcss>]] | <p>Set command selects which types of Cell Broadcast Messages are to be received by the device.</p> <p>Parameter:</p> <p><mode></p> <p>0 - the message types defined by <mids> and <dcss> are accepted 1 - the message types defined by <mids> and <dcss> are rejected</p> <p><mids> - Message Identifiers, string type: all different possible combinations of the CBM message identifiers; default is empty string ("").</p> <p><dcss> - Data Coding Schemes, string type: all different possible combinations of CBM data coding schemes; default is empty string ("").</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CSCB? | <p>Read command reports the current value of the parameters <mode>, <mids> and <dcss> in the format:</p> <p>+CSCB: <mode>,<mids>,<dcss></p> |
| AT+CSCB=? | <p>Test command returns the possible range of values for the parameter <mode>.</p> |
| Example | <pre>AT+CSCB? +CSCB: 1,"","" (all CBMs are accepted, none is rejected) OK AT+CSCB=0,"0,1,300-315,450","0-3" OK</pre> |
| Reference | <p>GSM 07.05, GSM 03.41 for CBM Message Identifiers, GSM 03.38 for CBM Data Coding Schemes.</p> |

2.7.2 Message configuration

2.7.2.1 +CSCA - service center address

| +CSCA –service center address | |
|--|---|
| AT+CSCA= <number> [,<type>] | <p>Set command sets the Service center Address to be used for mobile originated SMS transmissions.</p> <p>Parameter: <number> - SC phone number in the format defined by <type> <type> - the type of number 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme</p> <p>Note: to use the SMS service, is mandatory to set a Service Center Address at which service requests will be directed. SCA depends on the operator, hence contact your operator to set the right SCA. When this address is input, it is stored on the SIM if possible, else will be stored on the device internal memory so, once set, the input of this parameter is not anymore needed. In PDU mode, this setting is used, but only when the length of the SMSC address coded into the <pdu> parameter equals zero; else SCA defined in the PDU will be used instead.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CSCA? | <p>Read command reports the current value of the default SCA in the format: +CSCA: <number>,<type></p> <p>Note: if SCA is not present the device reports an error message.</p> |
| AT+ CSCA=? | Test command has no effect; the answer is OK |
| Reference | GSM 07.05 |

2.7.3 Message receiving and reading

2.7.3.1 +CNMI - new message indications to Terminal Equipment

| +CNMI – new message indications to terminal equipment | |
|---|---|
| AT+CNMI= <mode>[,<mt> [,<bm>[,<ds> [,<bfr>]]]] | <p>Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE.</p> <p>Parameter:</p> <p><mode>- unsolicited result codes buffering option</p> <p>0 - Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.</p> <p>1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them to the TE.</p> <p>2 - Buffer unsolicited result codes in the TA in case the DTE is busy and flush them to the TE after reservation. Otherwise forward them directly to the TE.</p> <p><mt> result code indication reporting for SMS-DELIVER</p> <p>0 - No SMS-DELIVER indications are reported to the TE.</p> <p>1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is reported to the TE using unsolicited result code:</p> <p>+CMTI: <memr>,<index></p> <p>where:</p> <p><memr> - memory storage where the new message is stored ("SM" or "ME")</p> <p><index> - location on the memory where SMS is stored</p> <p>2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are reported to the TE using unsolicited result code:</p> <p>+CMT: [<alpha>],<length><CR><LF><pdu>(PDU mode)</p> <p>where:</p> <p><alpha> - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook.</p> <p><length> - PDU length</p> <p><pdu> - PDU message</p> <p>or</p> <p>+CMT:<oa>,[<alpha>],<scts>[,<toa>,<fo>,<pid>,<dsc>,<sca>,<tosca>,<length>]<CR><LF><data> (text mode enabled; about parameters in italic, refer command +CSDH)</p> <p>where:</p> <p><oa> - originator address number</p> <p><alpha> - alphanumeric representation of <oa> or <da></p> <p><scts> - arrival time of the message to the SC</p> <p><toa>, <tosca> - type of number <oa> or <sca></p> <p>145 - number in international format (contains the "+")</p> <p>129 - number in national format</p> |

+CNMI – new message indications to terminal equipment

<fo> - first octet of GSM 03.40
 <pid> - Protocol Identifier
 <dsc> - Data Coding Scheme
 <sca> - Service Centre number
 <length> - text length
 <data>- text mode enabled
 Class 2 messages and messages in the message waiting indication group (stored message) result in indication as defined in <mt> = 1.
 3 - Class 3 SMS-DELIVERs are reported directly to TE using unsolicited result codes defined in <mt> = 2. Messages of other data coding schemes result in indication as defined in <mt> = 1.

<bm> - broadcast reporting option
 0 - Cell Broadcast Messages are not sent to the DTE
 2 - New Cell Broadcast Messages are sent to the DTE with the unsolicited result code:
 +CBM: <length><CR><LF><PDU> (in PDU mode)
 or
 +CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><text> (in text mode)
 where:
 <length> - PDU length
 <PDU> - message PDU
 <sn> - message serial number
 <mid> - message ID
 <dcs> - Data Coding Scheme
 <pag> - page number
 <pags> - total number of pages of the message
 <text> - message text

<ds> - SMS-STATUS-REPORTs reporting option
 0 - status report receiving is not reported to the DTE
 1 - the status report is sent to the DTE with the unsolicited result code:
 +CDS: <length><CR><LF><PDU> (PDU mode)
 or
 +CDS: <fo>,<mr>,,,<scts>,<dt>,<st> (text mode)
 2 - if a status report is stored, then unsolicited result code is sent:
 +CDS!: <memr>,<index>
 where
 <memr> - memory storage where the new message is stored ("SM")
 <index> - location on the memory where SMS is stored
 <length> - PDU length
 <PDU> - message PDU
 <fo> - first octet of the message PDU
 <mr> - message reference number
 <scts> - arrival time of the message to the SC
 <dt> - sending time of the message

| +CNMI – new message indications to terminal equipment | |
|--|---|
| | <p><st> - message status as coded in the PDU</p> <p><bfr> - buffered result codes handling method 0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT+CNMI? | <p>Read command returns the current parameter settings for +CNMI command in the form: AT+CNMI : <mode> , <mt> , <bm> , <ds> , <bfr></p> |
| AT+CNMI=? | <p>Test command reports the supported range of values for the +CNMI command parameters.</p> |
| Reference | GSM 07.05 |
| Note | <p>DTR signal is ignored, hence the indication is sent even if the DTE is inactive (DTR signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while DTE is not, at DTE start-up is suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages received.</p> |

2.7.3.2 +CMGL - list messages

| +CMGL – list messages | |
|--|---|
| AT+CMGL [=<stat>] | <p>Execution command reports the list of all the messages stored into <memr> (see command +CPMS) memory storage having the status equal to <stat> parameter.</p> <p>Parameter (PDU Mode):</p> <p><stat></p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 3 - store message already sent 4 - all messages (applies only to +CMGL command) <p>A report is sent for each message that has to be listed in the format: +CMGL: <index>,<stat>,<length><CR><LF><pdu></p> <p>where</p> <ul style="list-style-type: none"> <index> - message position in the memory storage list. <stat> - status of the message <length> - length of the PDU in bytes <pdu> - message in PDU format according to GSM 3.40 <p>Note: OK message is sent only at the end of the listing.</p> <p>Parameter (Text Mode):</p> <p><stat></p> <ul style="list-style-type: none"> "REC UNREAD" - new message "REC READ" - read message "STO UNSENT" - stored message not yet sent "STO SENT" - store message already sent "ALL" - all messages (applies only to +CMGL command) <p>A report is sent for each message that has to be listed in the format: +CMGL:</p> <p><index>,<stat>,<oa/da>[,,<toa/toda>,<length>]<CR><LF><text></p> <p>where</p> <ul style="list-style-type: none"> <index> - message position in the storage <stat> - message status <oa/da> - originator/destination number < toa/toda > - type of number <oa/da> <ul style="list-style-type: none"> 145 - number in international format (contains the "+") 129 - number in national format <length> - text length <text> - message text <p>For each message delivery confirm a result code is reported in the format: +CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st></p> <p>Where</p> <ul style="list-style-type: none"> <index> - message position in the storage <stat> - message status <fo> - first octet of the message PDU <mr> - message reference number |

| +CMGL – list messages | |
|------------------------------|---|
| | <p><scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU</p> <p>Note: If parameter is omitted the command returns the list of sms with "REC UNREAD" status.</p> |
| AT+CMGL=? | Test command returns a list of supported <stat>s |
| Reference | GSM 07.05 |
| Note | <p>If text mode (+CMGL=1) the TEST command output is not included in parenthesis</p> <p>AT+CMGL=? +CMGL: "REC UNREAD","REC READ","STO UNSENT","STO SENT","ALL"</p> |

2.7.3.3 +CMGR - read message

+CMGR – read message

**AT+CMGR=
<index>**

Execution command reports the message with location value <index> from preferred message storage <memr> (see +CPMS) in the format:

(PDU Mode)

+CMGR: <stat>,<length><CR><LF><pdu>

where

<stat> - status of the message

0 - new message

1 - read message

2 - stored message not yet sent

3 - store message already sent

<length> - length of the PDU in bytes.

<pdu> - message in PDU format according to GSM 3.40.

(Text Mode)

For the received messages:

+CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><text>

For the sent messages:

+CMGR: <stat>,<da>[,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]<CR><LF><testo>

For the message delivery confirm:

+CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>

Where:

<stat> - status of the message

"REC UNREAD" - new received message unread

"REC READ" - received message read

"STO UNSENT" - message stored not yet sent

"STO SENT" - message stored already sent

<fo> - first octet of the message PDU

<mr> - message reference number

<scts> - arrival time of the message to the SC

<dt> - sending time of the message

<st> - message status as coded in the PDU

<pid> - Protocol Identifier

<dcs> - Data Coding Scheme

<oa> - Originator address number

<da> - Destination address number

<sca> - Service Centre number

< tooa>,<toda >,<tosca> - type of number <oa>,<da>,<sca>

145 - number in international format (contains the "+")

129 - number in national format

<length> - text length

<text> - message text

| +CMGR – read message | |
|-----------------------------|---|
| | <p>The status of the message and entire message data unit <pdu> is returned. If status of the message is 'received unread', status in the storage changes to 'received read'.</p> <p>Parameter: <index> Note: if record number <index> on message storage memory is empty, then an error message will be returned.</p> |
| AT+ CMGR =? | Test command has no effect; the answer is OK |
| Reference | GSM 07.05 |

2.7.4 Message sending and writing

2.7.4.1 +CMGS - send message

| +CMGS – send message | |
|--|--|
| <p><i>(PDU Mode)</i> AT+CMGS= <length></p> | <p>(PDU Mode) Execution command sends to the network a SMS message input as a PDU. Parameter: <length> - length of the PDU to be sent in bytes. 7...164</p> <p>The device responds to the command with the prompt '>' and awaits for the number of bytes of PDU specified. To complete the operation send Ctrl-Z char (0x1A hexadecimal) , to exit without sending the message send ESC char (0x1B hexadecimal). If message is successfully sent to the network, then the result is sent in the format: +CMGS: <mr> where <mr> is the message reference number. If message sending fails for some reason, an error code is reported.</p> |
| <p><i>(Text Mode)</i> AT+CMGS=<da> [,<toda>]</p> | <p>(Text Mode) Execution commands sends to the network a SMS message input as a text message. Parameter: <da> - destination address number</p> <p>The device responds to the command with the prompt '>' and awaits for message text (max 160 characters). To complete the operation send Ctrl-Z char (0x1A hexadecimal) , to exit without sending the message send ESC char (0x1B hexadecimal). If message is successfully sent to the network, then the result is sent in the format: +CMGS: <mr> where <mr> is the message reference number. If message sending fails for some reason, an error code is reported. <toda> - type of destination address 145 - number in international format (contains the "+") 129 - number in national format</p> |
| Reference | GSM 07.05 |
| Note | <p>Care must be taken to ensure that during the command execution, which might take several seconds, no other SIM interacting commands are issued. To avoid malfunctions is suggested to wait for the +CMGS:<mr> or +CMS ERROR:<err> response before issuing further commands.</p> |

2.7.4.2 +CMSS - send message from storage

| +CMSS – send message from storage | |
|--|---|
| AT+CMSS= <index>[,<da> [,<toda>]] | <p>Execution command sends to the network a message which is already stored in the <memw> storage (see +CPMS) at the location <index>.</p> <p>If new recipient address <da> is given, it shall be used instead of the one stored with the message. <Toda> is type of <da>:</p> <ul style="list-style-type: none"> 145 - number in international format (contains the "+") 129 - number in national format <p>If message is successfully sent to the network then the result is sent in the format:</p> <p>+CMSS: <mr></p> <p>where <mr> is the message reference number.</p> <p>If message sending fails for some reason, an error code is reported:</p> <p>+CMS ERROR:<err></p> <p>Note: to store a message in the <memw> storage see command +CMGW.</p> <p>Care must be taken to ensure that during the command execution, which might take several seconds, no other SIM interacting commands are issued.</p> <p>To avoid malfunctions is suggested to wait for the +CMGS:<mr> or +CMS ERROR:<err> response before issuing further commands.</p> |
| Reference | GSM 07.05 |

2.7.4.3 +CMGW - write message to memory

| +CMGW – write message to memory | |
|--|--|
| <p><i>(PDU Mode)</i> AT+CMGW= <length></p> | <p>(PDU Mode) Execution command writes in the <memw> memory storage a new SMS message input as a PDU. Parameter: <length> - length of the PDU to be written in bytes. 7...164</p> <p>The device responds to the command with the prompt '>' and waits for the number of bytes of PDU specified. To complete the operation send Ctrl-Z char (0x1A hexadecimal) to exit without writing the message send ESC char (0x1B hexadecimal). If message is successfully written in the memory, then the result is sent in the format: +CMGW: <index> where <index> is the message location index in the memory <memw>("SM"). If message storing fails for some reason, an error code is reported</p> |
| <p><i>(Text Mode)</i> AT+CMGW [=<da>]</p> | <p>(Text Mode) Execution command writes in the <memw> memory storage a new SMS message input as Text. Parameter: <da> - destination address number</p> <p>The device responds to the command with the prompt '>' and waits for the message text (max 160 characters). To complete the operation send Ctrl-Z char (0x1A hexadecimal), to exit without writing the message send ESC char (0x1B hexadecimal). If message is successfully written in the memory, then the result is sent in the format: +CMGW: <index> Where <index> is the message location index in the memory <memw> ("SM"). If message storing fails for some reason, an error code is reported</p> |
| Reference | GSM 07.05 |
| Note | <p>Care must be taken to ensure that during the command execution, no other SIM interacting commands are issued. To avoid malfunctions is suggested to wait for the +CMGS:<mr> or +CMS ERROR:<err> response before issuing further commands.</p> |

2.7.4.4 +CMGD - delete message

| +CMGD – delete message | |
|--|---|
| AT+CMGD= <index> [,<delflag>] | <p>Execution command deletes from memory the message/messages Note: if the location to be deleted is empty, an error message is reported. If <delflag> is present and not set to 0 then <index> is ignored and ME shall follow the rules for <delflag> shown below.</p> <p>Parameter: <index> - message position index in the selected storage <memr> <delflag> - delete mode selection flag 0 (or not present) - delete message at position <index> 1 - delete all received read messages 2 - delete all received read and all sent messages 3 - delete all received read and all written sent/unsent messages 4 - delete all messages.</p> |
| AT+CMGD=? | <p>Test command shows the valid memory locations and optionally the supported values of <delflag>. +CMGD: (return a list of supported <index>s)[,(list of supported <delflag>s)] es: +CMGD: (1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,47),(0-4)</p> |
| Reference | GSM 07.05 |

2.8 FAX Class 1 AT Commands

2.8.1 General configuration

NOTE: All the test command results are without echo of the command.

2.8.1.1 +FCLASS - select active service class

| +FCLASS - Sselect active service class | |
|---|--|
| AT+FCLASS= <n> | Set command sets the MODULE in specified connection mode (data, fax, voice), hence all the calls done after, will be data or voice. Parameter: <n> 0 - data 1 - fax class 1 8 - voice |
| AT+FCLASS? | Read command returns the current configuration value of the parameter <n>. |
| AT+FCLASS=? | Test command returns all supported values of the parameters <n>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications / GSM 07.07 |

2.8.1.2 +FMI – Report manufacturer ID

| +FMI – Report manufacturer ID | |
|--------------------------------------|--|
| AT+FMI? | Read command reports the manufacturer ID. The output depends on the choice made through AT#SELINT command. |
| Example | AT+FMI? Telit OK |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.1.3 +FMM? – Report model ID

| +FMM – Report model ID | |
|-------------------------------|---|
| AT+FMM? | Read command reports the model ID |
| Example | AT+FMM? MODULE - GSM900/1800 voice/data/fax module OK |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.1.4 +FMR – Report revision ID

| +FMR – Report revision ID | |
|----------------------------------|---|
| AT+FMR? | Read command reports the software revision ID |
| Example | AT+FMR? 1.01.000 CS988 OK |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.2 Transmission/Reception control

2.8.2.1 +FTS – Stop Transmission and pause

| +FTS – Stop transmission and pause | |
|---|--|
| AT+FTS=<time> | Execution command causes the modem to terminate a transmission and wait for <time> 10 ms intervals before responding with the OK result code. Parameter: <time> - duration of the pause, expressed in 10ms intervals. 0-255 : |
| AT+FTS=? | Test command returns all supported values of the parameters <time>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.2.2 +FRS – Wait for receive silence

| +FRS – Wait for receive silence | |
|--|---|
| AT+FRS=<time> | Execution command causes the modem to listen and report an OK result code when silence has been detected for the specified period of time. This command will terminate when the required silence period is detected or when the DTE sends another character other than XON or XOFF. Parameter: <time> - amount of time, expressed in 10ms intervals. ..0..255 |
| AT+FRS=? | Test command returns all supported values of the parameters <time>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.2.3 +FTM – Transmit data modulation

| +FTM – Transmit data | |
|-----------------------------|--|
| AT+FTM=<mod> | Execution command causes the module to transmit facsimile data using the modulation defined by the parameter <mod>. Parameter: <mod> - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps |
| AT+FTM=? | Test command returns all supported values of the parameters <mod>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.2.4 +FRM – Receive data modulation

| +FRM – Receive data modulation | |
|---------------------------------------|--|
| AT+FRM=<mod> | Execution command causes the module to receive facsimile data using the modulation defined by the parameter <mod>. Parameter: <mod> - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps |
| AT+FRM=? | Test command returns all supported values of the parameters <mod>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.2.5 +FTH – Transmit data with HDLC framing

| +FTH – Transmit data with HDLC framing | |
|---|--|
| AT+FTH=<mod> | Execution command causes the module to transmit facsimile data using HDLC protocol and the modulation defined by the parameter <mod>. Parameter: <mod> - carrier modulation 3 - V21/300 bps |
| AT+FTH=? | Test command returns all supported values of the parameters <mod>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.2.6 +FRH – Receive data with HDLC framing

| +FRH – Receive data data with HDLC framing | |
|---|---|
| AT+FRH=<mod> | Execution command causes the module to receive facsimile data using HDLC protocol and the modulation defined by the parameter <mod>. Parameter: <mod> - carrier modulation 3 – V21/300 bps |
| AT+FRH=? | Test command returns all supported values of the parameters <mod>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.3 Serial port control

2.8.3.1 +FLO – Select flow control specified by type

| +FLO – Select flow control specified by type | |
|---|--|
| AT+FLO=<type> | Set command selects the flow control behaviour of the serial port in both directions: from DTE to DTA and from DTA to DTE Parameter: <type> - flow control option for the data on the serial port 0 – flow control None 1 – flow control Software (XON-XOFF) 2 – flow control Hardware (CTS-RTS) Note: This command is a shortcut of the +IFC command. |
| AT+FLO? | Read command returns the current value of parameter <type> |
| AT+FLO=? | Test command returns all supported values of the parameters <type>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.3.2 +FPR – Select serial port rate

| +FPR – Select serial port rate | |
|---------------------------------------|---|
| AT+FPR=<rate> | Set command selects the the serial port speed in both directions: from DTE to DTA and from DTA to DTE. When autobauding is selected, then the speed is detected automatically. Parameter: <rate> - serial port speed selection 0 - autobauding |
| AT+FPR? | Read command returns the current value of parameter <rate> |
| AT+FPR=? | Test command returns all supported values of the parameters <rate>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.8.3.3 +FDD – Double escape character replacement control

| +FDD – Double escape character replacement control | |
|---|--|
| AT+FDD=<mode> | <p>Set command concerns the use of the <DLE><SUB> pair to encode consecutive escape characters (<10h><10h>) in user data.</p> <p>Parameter <mode>= 0 - currently the only available value</p> <p>The DCE decode of <DLE><SUB> is either <DLE><DLE> or discard The DCE encode of <10h><10h> is <DLE><DLE><DLE><DLE></p> |
| AT+FDD? | Read command returns the current value of parameter <mode> |
| AT+FDD=? | Test command returns all supported values of the parameters <mode>. |
| Reference | ITU T.31 and TIA/EIA-578-A specifications |

2.9 Custom AT Commands

2.9.1 General configuration AT commands

2.9.1.1 #SELINT – Select interface style

| #SELINT – Select type of interface | |
|---|--|
| AT#SELINT[=<v>] | <p>There are some slight modifications between GM862-GSM/GM862-GPRS and following products AT interface. It is up to the user to select the AT interface he prefers.</p> <p>Set command sets the AT command interface style depending on parameter <v>.</p> <p>Parameter:</p> <p><v> - AT command interface</p> <ul style="list-style-type: none"> 0 – AT interface style is like the former GM862 family one (ref. ver. 1.05.000) 1 – newer AT interface style (ref. ver. 6.02.007) 2 – reserved for future use 3 - reserved for future use <p>There are some commands that have different behaviour through platforms:</p> <p>AT+GMI AT&V AT&V0 ATI ATK ATS25 ATS30 AT+CGMI AT+CRLP AT+COPN AT+COPS AT+CRSL AT+CBC AT+FMI? AT#MONI AT#CGMI</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as read command</p> |
| AT#SELINT? | Read command reports the current interface style selected <v>. |
| AT#SELINT=? | Test command reports the available range of values for parameter <v>. |

2.9.1.2 #CGMI - request manufacturer identification

#CGMI – request manufacturer identification

| | |
|----------------|---|
| AT#CGMI | Execution command returns the device manufacturer identification code with command echo. The output depends on the choice made through AT#SELINT command. |
|----------------|---|

2.9.1.3 #CGMM - request model identification

#CGMM – request model identification

| | |
|----------------|---|
| AT#CGMM | Execution command returns the device model identification code with command echo. |
|----------------|---|

2.9.1.4 #CGMR - request revision identification

#CGMR – request revision identification

| | |
|----------------|--|
| AT#CGMR | Execution command returns device software revision number with command echo. |
|----------------|--|

2.9.1.5 #CGSN - request product serial number identification

#CGSN – request product serial number identification

| | |
|----------------|---|
| AT#CGSN | Execution command returns the product serial number, identified as the IMEI of the mobile, with command echo. |
|----------------|---|

2.9.1.6 #CIMI - request international mobile subscriber identity (IMSI)

#CIMI – request international mobile subscriber identity (IMSI)

| | |
|----------------|---|
| AT#CIMI | Execution command returns the international mobile subscriber identity, identified as the IMSI number, with command echo. |
|----------------|---|

2.9.1.7 #CAP - Change Audio Path

| #CAP – change audio path | |
|---------------------------------|--|
| AT#CAP[=<n>] | <p>Set command switches the active audio path depending on parameter <n></p> <p>Parameter: <n> - audio path 0 - audio path follows the Axe input (default at start up): Axe = low - handsfree enabled Axe = high - internal path enabled 1 - enables handsfree external mic/ear audio path 2 - enables internal mic/ear audio path</p> <p>Note: The audio path are mutually exclusive, enabling one disables the other. When changing the audio path, the volume level is set at the previously stored value for that audio path. (see AT+CLVL).</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT#CAP? | Read command reports the active audio path in the format: #CAP: <n>. |
| AT#CAP=? | Test command reports the supported values for the parameter <n>. |

2.9.1.8 #SRS - Select ringer sound

| #SRS – select ringer sound | |
|---|--|
| AT#SRS[=<n>[,<timeout>]] | <p>Set command sets the ringer sound. The parameters are:</p> <p><n> - ringing tone 0 - current ringing tone 1..maximum value - ringing tone number, where maximum value can be read by issuing the AT#SRS=? Command</p> <p><timeout> ringing tone playing timeout in seconds. 0 - no ringing tone playing, only tone setting 1..60 - <n> tone playing for <timeout> seconds and successive tone setting.</p> <p>Note: When the command is issued with <timeout> >0, the <n> ringing tone is played for <timeout> seconds and then stored as current tone. If command is issued with <timeout> = 0, the playing of the ringing is stopped (if present) and <n> ringing tone is set as default. If command is issued with <n> = 0 and <timeout> >0 then the default ringing tone is played. If both <n> and <timeout> are 0 then currently playing tone is set as default and ringing is stopped.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command</p> |
| AT#SRS? | <p>Read command reports current selected ringing and its status in the form:</p> <p>#SRS: <n>,<status> where: <n> ringing tone number 1 .. maximum value.</p> <p><status> ringing status 0 - selected but not playing 1 - currently playing</p> |
| AT#SRS=? | <p>Test command reports the supported values for the parameters <n> and <timeout></p> |

2.9.1.9 #SRP –Select Ringer Path

| #SRP – select ringer path | |
|----------------------------------|--|
| AT#SRP[=<n>] | <p>Set command selects the ringer path towards whom sending ringer sounds and all signalling tones. Parameter: <n> - Ringer path number 0 - sound output towards current selected audio path (see command #CAP) 1 - sound output towards handsfree 2 - sound output towards handset 3 - sound output towards Buzzer Output pin GPIO7</p> <p>Note: In order to use the Buzzer Output an external circuitry must be added to drive it properly from the GPIO7 pin, furthermore the GPIO7 pin direction must be set to Buzzer output (Alternate function) see command #GPIO.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT#SRP? | Read command reports the current ringer path setting in the format: #SRP:<n>. |
| AT#SRP=? | Test command reports the supported values for the parameter <n>. |
| Example | <pre>AT#SRP=? #SRP=(0-3) OK AT#SRP=3 OK</pre> |

2.9.1.10 #STM - Signalling Tones Mode

| #STM – signalling tones mode | |
|---|--|
| AT#STM [=<mode>] | <p>Set command enables/disables the signalling tones output on the audio path selected with #SRP command</p> <p>Parameter :</p> <p><mode> - signalling tones status 0 - signalling tones disabled 1 - signalling tones enabled</p> <p>Note: at#stm=0 has the same effect as at@calm=2; at#stm=1 has the same effect either as at+calm=0 or at@calm=0.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT#STM? | <p>Read command reports the current signaling tones status in the format:</p> <p>#STM: <mode></p> |
| AT#STM=? | <p>Test command reports supported range of values for <mode> parameter.</p> |

2.9.1.11 #PCT – display PIN Counter

| #PCT – display PIN counter | |
|-----------------------------------|--|
| AT#PCT | <p>Execution command reports the PIN/PUK or PIN2/PUK2 input remaining attempts, depending on +CPIN requested password in the format:</p> <p>#PCT: <n></p> <p>Note: If +CPIN requires the PIN then max 3 attempts are allowed, after that the PUK code is requested; if even PUK is input wrong for other three time then #PCT:0 and SIM remains blocked.</p> |

2.9.1.12 #SHDN – Software Shut Down

| #SHDN – software shutdown | |
|----------------------------------|--|
| AT#SHDN | <p>Execution command causes device detach from the network and shut down. Before definitive shut down an OK response is returned.</p> <p>Note: after the issuing of this command any previous activity is terminated and the device will not respond to any further command. To turn it on again Hardware pin ON/OFF must be tied low.</p> |

2.9.1.13 #WAKE – Wake from Alarm mode

| #WAKE – Wake from Alarm Mode | |
|-------------------------------------|---|
| AT#WAKE[= 0] | <p>Execution command exits the "Alarm mode" and enters the normal operating mode. After entering in normal operating mode an OK response is returned.</p> <p>With the execution of this command all Alarm activity (for example alarm tone playing) is immediately terminated.</p> <p>If the command is issued during the normal operating mode then the only action is to stop Alarm activity, if present, and return OK response.</p> <p>If parameter is omitted, the command returns the operating mode status of the device in the format:</p> <p>#WAKE: <status> where: <status> - operating mode 0 - normal operating mode 1 - alarm mode</p> <p>Note: The "alarm mode" is indicated by hardware pin CTS to the ON status and DSR to the OFF status, while the "power saving" status is indicated by a CTS - OFF and DSR - OFF status. The normal operating status is indicated by DSR - ON.</p> <p>During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the #WAKE and #SHDN, every other command must not be issued during this state.</p> |
| AT#WAKE? | <p>Read command has the same effect as Execution command when parameter is omitted.</p> |

2.9.1.14 #QTEMP –Query Temperature overflow

| #QTEMP – query temperature overflow | |
|--|---|
| AT#QTEMP [=<mode>] | <p>Execution command sets the type of indication. Parameter: <mode> - type of indication 0 - result reported only when querying with #QTEMP?</p> <p>If parameter is omitted the command queries the internal temperature sensor of the device for over temperature. The result is reported in the format: #QTEMP:<temp> where <temp> - over temperature indicator <temp> = 0 - device temperature is in the working range</p> <p>Note: The device should not be operated out of its working temperature range; if temperature is out of range proper functioning of the device is not ensured.</p> |
| AT#QTEMP? | Read command has the same effect of Execution command when parameter is omitted. |
| #QTEMP=? | Test command reports supported range of values for <mode> parameter. |

2.9.1.15 #SGPO –Set General Purpose Output

| #SGPO – set general purpose output | |
|---|---|
| AT#SGPO [=<stat>] | <p>Set command sets the value of the general purpose output pin GPIO2 according to <stat> parameter</p> <p>Parameter: <stat> 0 - output pin cleared to 0 (LOW) 1 - output pin set to 1 (HIGH)</p> <p>Note: The GPIO2 is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated: AT#SGPO= 0 sets the open collector output HIGH AT#SGPO= 1 sets the open collector output LOW A pull up resistor is required on pin GPIO2.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#SGPO? | <p>Read command reports the #SGPO command setting, hence the opposite status of the open collector pin in the format: #SGPO: <stat>.</p> |
| AT#SGPO=? | <p>Test command reports the supported range of values of the command parameter <stat>.</p> |
| Note | <p>This command is meaningful only for GM862 family</p> |

2.9.1.16 #GGPI – Read General Purpose Input

| #GGPI – read general purpose input | |
|---|---|
| AT#GGPI [=<dir>] | <p>Set command sets the General purpose input pin behaviour depending on parameter <dir>.</p> <p>Parameter: <dir> - auxiliary input GPIO1 setting 0 - the Read command reports the logic input level read from GPIO1 pin.</p> <p>Note: The device has an insulated input pin (the input goes the base of an internal decoupling transistor) which can be used as a logic general purpose input. This command sets the read behaviour for this pin, since only direct read report is supported; the issue of this command is not needed. In future uses the behaviour of the read input may be more complex.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT#GGPI? | <p>Read command reports the read value for the input pin GPIO1 in the format: #GGPI: <dir>,<stat> where <dir> direction setting (see #GGPI=<dir>) <stat> - logic value read from pin GPIO1</p> <p>Note: Since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the GPIO1 input pin.</p> |
| AT#GGPI=? | <p>Test command reports supported range of values for <dir> parameter.</p> |
| Note | <p>This command is meaningful only for GM862 family</p> |

2.9.1.17 #GPIO –General Purpose Input/Output pin control

#GPIO –General Purpose Input/Output pin control

| | |
|--|---|
| <p>AT#GPIO [=<pin>, <mode>[,<dir>]]</p> | <p>Execution command sets the value of the general purpose output pin GPIO<pin> according to <dir> and <mode> parameter. Not all configuration for the three parameters are valid.</p> <p>Parameter:</p> <p><pin> - GPIO pin number; supported range is from 1 to a value that depends on the hardware, but GPIO1 is input only and GPIO2 is output only.</p> <p><dir> - GPIO pin direction 0 - pin direction in INPUT 1 - pin direction is OUTPUT 2 - pin direction is ALTERNATE FUNCTION *see Note</p> <p><mode> - its meaning depends on <dir> setting: 0 - no meaning if <dir> = 0 - INPUT - output pin cleared to 0 (LOW) if <dir> = 1 - OUTPUT - no meaning if <dir> = 2 - ALTERNATE FUNCTION</p> <p>1 - no meaning if <dir> = 0 - INPUT - output pin set to 1 (HIGH) if <dir> = 1 - OUTPUT - no meaning if <dir> = 2 - ALTERNATE FUNCTION</p> <p>2 - Reports the read value from the input pin if <dir> = 0 - INPUT - Reports the read value from the input pin if <dir> = 1 - OUTPUT - Reports a no meaning value if <dir> = 2 - ALTERNATE FUNCTION</p> <p>Note: when <mode> = 2 (and <dir> is omitted) the command reports the direction and value of pin GPIO<pin> in the format:</p> <p>#GPIO: <dir>,<stat> where <dir> - current direction setting for the GPIO<pin> <stat> - logic value read from pin GPIO<pin> in the case the pin <dir> is set to input; - logic value present in output of the pin GPIO<pin> in the case the pin <dir> is currently set to output; - no meaning value for the pin GPIO<pin> in the case the pin <dir> is set to alternate function;</p> <p>Note for GPIO1: Since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the GPIO1 input pin</p> <p>Note: if all parameters are omitted the command reports the read direction and value of all GPIO pins.</p> |
|--|---|

| #GPIO –General Purpose Input/Output pin control | |
|--|--|
| | <p>Note: "ALTERNATE FUNCTION" value is valid only for pins GPIO5 – alternate function is "RF Transmission Monitor" GPIO6 - alternate function is "Alarm Output" (see command +CALA) GPIO7 - alternate function is "Buzzer Output" (see command #SRP) While using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided. Note: The GPIO2 is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated</p> |
| AT#GPIO? | Read command has the same effect as Execution command when parameters are omitted. |
| AT#GPIO=? | Test command reports the supported range of values of the command parameters <pin>,<mode>,<dir>. |
| Example | <pre>AT#GPIO=3,0,1 OK AT#GPIO=3,2 #GPIO: 1,0 OK AT#GPIO=4,1,1 OK AT#GPIO=5,0,0 OK AT#GPIO=6,2 #GPIO: 0,1 OK AT#GPIO=7,0,0 OK</pre> |

2.9.1.18 #ADC – Read Analog/Digital Converter input

| #ADC – Read Analog/Digital Converter input | |
|---|---|
| AT#ADC [=<adc>, <mode>[,<dir>]] | <p>Execution command reads <adc> pin voltage, converted by ADC, and outputs it in the format:</p> <p>#ADC: <value> where <value> is expressed in mV</p> <p>Parameters:</p> <p><adc> - index of pin 1 – available for TRIZIUM and TRIZIUM QUAD 2 – only for TRIZIUM QUAD 3 – only for TRIZIUM QUAD</p> <p><mode> - required action 2 – query ADC value</p> <p><dir> - direction 0 – not used</p> <p>If all parameters are omitted the command reports all pins voltage, converted by ADC.</p> <p>Note: The command returns the last valid measure.</p> |
| AT#ADC? | Read command has the same effect as Execution command when all parameters are omitted. |
| AT#ADC=? | Test command reports the supported range of values of the command parameters <adc>,<mode>,<dir>. |

2.9.1.19 #VAUX – Auxiliary Voltage Output Control

| #VAUX– Auxiliary Voltage Output Control | |
|--|--|
| AT#VAUX [=<n>, <stat>] | <p>Set command disables/enables VAUX output depending on <stat>:</p> <p>Parameters:</p> <p><n> - VAUX pin index 1 - there is just one VAUX pin</p> <p><stat> 0 - output off 1 - output on ..2 - read current value of VAUX pin</p> <p>Note: when <stat> = 2 and command is successful, it returns: #VAUX: <stat> where</p> |

| #VAUX– Auxiliary Voltage Output Control | |
|--|---|
| | <p><stat> - power output status 0 - output off 1 - output on</p> <p>Note: If all parameters are omitted the command reports the current value of all VAUX pins.</p> |
| AT#VAUX? | Read command has the same behaviour as Set command when parameters are omitted. |
| AT#VAUX=? | Test command reports the supported range of values for parameters <n>, <stat>. |

2.9.1.20 #AUTOATT – Enables

| #AUTOATT – Select | |
|---------------------------------------|--|
| AT#AUTOATT [=<auto>] | <p>Set command enables the TE auto-attach property. Parameter: <auto> 0 – disables auto attach property 1 – enables auto attach property (default)</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT# AUTOATT? | Read command reports the current status of auto-attach property. |
| AT# AUTOATT=? | Test command reports available value for parameter <auto>. |

2.9.1.21 #MONI – Monitor Cells

| #MONI – monitor cell | |
|-------------------------------|--|
| AT#MONI [=<number>] | <p>Set command sets the neighbour cell to extract data from. Parameter: <number> - Range is 0..7 (default 0, serving cell). It may have 2 meanings: when chosen in the range 0..6 it is the ordinal number of the cell, in the neighbour of the serving cell, from which we're extracting information; when = 7, it is a special request to obtain information from the whole set of cells.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#MONI? | <p>Read command reports the available data for selected cell (default is the serving cell) and dedicated channel (if exists). When extracting data for the serving cell and the network name is known the format is: #MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv></p> <p>When the network name is unknown: #MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv></p> <p>When extracting data for an adjacent cell: #MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm where: netname = name of network operator cc = country code nc = network operator code n = progressive number of adjacent cell bsic = base station identification code qual = quality of reception (0-7) lac = localization area code id = cell identifier arfcn = assigned radio channel dBm = received signal strength in dBm timadv= timing advance Note: TA: <timadv> is reported only for the serving cell.</p> <p>When the last setting done with command AT#MONI=<number> is 7, then the Read command reports the above informations for each of the cells in the neighbour of the serving cell, formatting them in a sequence of <CR>-terminated strings.</p> |
| AT#MONI=? | <p>Test command reports the available neighbour cells number and the ordinal number of the current selected cell in the format #MONI: (<CellNo>,<CellSet>) where: <CellNo> - available neighbour cells number (for compatibility with</p> |

| #MONI – monitor cell | |
|-----------------------------|---|
| | <p>previous version of code this value is always 5). <CellSet> - the last setting done with command AT#MONI =<number>.</p> <p>An enhanced version of the Test command, providing a generic answer, has been defined: AT#MONI=??</p> <p>Note: The output depends on the choice made through AT#SELINT command.</p> |
| AT#MONI=?? | <p>Enhanced test command reports the available neighbour cells number and the ordinal number of the current selected cell as a generic answer in the format: #MONI: (7,<CellSet>) where: <CellSet> - the last setting done with command AT#MONI=<number>.</p> |
| Note | <p>The refresh time of the measures is preset to 3 sec The timing advance value is meaningful only during calls or GPRS transfers active.</p> |

2.9.1.22 #QSS – Query SIM Status

| #QSS – query SIM status | |
|---|--|
| AT#QSS [=<mode>] | <p>Set command sets the type of notification. Parameter: <mode> <mode>: type of notification 0 - query only 1 - send unsolicited indication (#QSS) every change of state If enabled (mode = 1) at any status change is sent: #QSS: <status> <status> - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command.</p> |
| AT#QSS? | <p>Read command reports the type of notification and the SIM status in the format: #QSS: <mode>,<status></p> |
| AT#QSS=? | <p>Test command returns the supported range of values of the parameter <mode>.</p> |

2.9.1.23 #ACAL – Set Automatic Call

| #ACAL – set automatic call | |
|--|---|
| AT#ACAL= <mode> | <p>Set command enables the automatic call. Parameter: <mode> 0 – disable 1 – enable</p> <p>If enabled, the transition OFF/ON of DTR causes an automatic call to the first number (position 0) stored in the internal phonebook. The &D command must be set to 2.</p> <p>Note. Type of call depends on the last issue of command AT+FCLASS.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#ACAL? | <p>Read command returns the current status in the format: #ACAL: <mode></p> |
| AT#ACAL=? | <p>Test command returns the supported range of values of the parameter <mode>.</p> |
| Note | <p>See &Z to write and &N to read the number on module internal phonebook.</p> |

2.9.1.24 #SMOV – SMS Overflow

| #SMOV – SMS overflow | |
|--|---|
| AT#SMOV [=<mode>] | Set command enables the signalling of SMS overflow Parameter: <mode> 0 - disable 1 - enable If enable, when the maximum storage capacity has reached, the #USMO:<memo> network initiated notification is send. Note: If parameter is omitted then the behaviour of Set command is the same as Read command. |
| AT#SMOV? | Read command returns the current status in the format: #SMOV:<mode>. |
| AT#SMOV=? | Test command returns the supported range of values of the parameter <mode>. |

2.9.1.25 #SHFEC – Set Handsfree echo canceller

| #SHFEC – set handsfree echo canceller | |
|--|---|
| AT#SHFEC [=<mode>] | Set command sets echo canceller on audio handsfree output. Parameter: <mode> 0 - disables echo canceller for handsfree mode (default) 1 – enables echo canceller for handsfree mode Note: This setting returns to default after power off. Note: If parameter is omitted then the behaviour of Set command is the same of Read command. |
| AT#SHFEC? | Read command returns the current status in the format: #SHFEC:<mode>. |
| AT#SHFEC=? | Test command returns the supported range of values of the parameter <mode>. |

2.9.1.26 #HFMICG – Handsfree Microphone Gain

| #HFMICG – handsfree microphone gain | |
|---|---|
| AT#HFMICG [=<level>] | Set command sets the handsfree microphone input gain Parameter: <level>: handsfree microphone input gain 0 - 7 handsfree microphone gain (+6dB/step) Note: If parameter is omitted then the behaviour of Set command is the same of Read command. |
| AT#HFMICG? | Read command returns the current status of handsfree input gain in the format: #HFMICG: <level> |
| AT#HFMICG=? | Test command returns the supported range of values of the parameter <level>. |

2.9.1.27 #HSMICG – Handset Microphone Gain

| #HSMICG – handset microphone gain | |
|---|---|
| AT#HSMICG [=<level>] | Set command sets the microphone input gain Parameter: <level>: handset microphone input gain 0 - 7 handset microphone gain (+6dB/step) Note: If parameter is omitted then the behaviour of Set command is the same of Read command. |
| AT#HSMICG? | Read command returns the current status of handset input gain in the format: #HSMICG: <level> |
| AT#HSMICG=? | Test command returns the supported range of values of the parameter <level>. |

2.9.1.28 #SHFSD – Set headset sidetone

| #SHFSD – set headset sidetone | |
|---|--|
| AT#SHFSD [=<mode>] | Set command sets the sidetone on headset audio output. Parameter <mode>: 0 - disables the headset sidetone (default) 1 - enables the headset sidetone. Note: This setting returns to default after power off. Note: If parameter is omitted then the behaviour of Set command is the same of Read command. |
| AT#SHFSD? | Read command returns the current status in the format: #SHFSD: <mode> |
| AT#SHFSD=? | Test command returns the supported range of values of the parameter <mode>. |

2.9.1.29 #/ – Repeat last command

| #/ – Repeat last command | |
|---------------------------------|---|
| AT#/ | Execute command is used to execute again the last received command. |

2.9.1.30 #NITZ – Network Timezone

| #NITZ – Network Timezone | |
|--|---|
| AT#NITZ=<val> [,<mode>] | <p>Set command enables or disables automatic date and time updating. Date and time information may be sent by the network after GSM registration or after GPRS attach.</p> <p>Parameter:</p> <p><val> 0 - disables automatic set 1 - enable automatic set</p> <p><mode> 0 - disable unsolicited message 1 - enable unsolicited message</p> <p>If <mode> = 1 after date and time updating the result is sent in the format: #NITZ: <yy/MM/dd, hh:mm:ss> where: yy - year MM - month (in digits) dd - day hh - hour mm - minute ss – second</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same of Read command.</p> |
| AT#NITZ? | <p>Read command reports the value of current parameters in the format: #NITZ: <val>,<mode>.</p> |
| AT#NITZ=? | <p>Test command returns supported values of parameters <val>,<mode>.</p> |

2.9.1.31 #BND – Select Band

| #BND – Select Band | |
|---|---|
| AT#BND [=<band>] | <p>Set command sets the band to the <band> value.</p> <p>Parameter</p> <p><band>:</p> <ul style="list-style-type: none"> 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz 2 - GMS 850MHz + PCS 1800MHz (available only on quadri-band modules) 3 - GMS 850MHz + PCS 1900MHz (available only on quadri-band modules) <p>Note: This setting is maintained even after power off.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT#BND? | <p>Read command returns the current band selected in the format:</p> <p>#BND: <band></p> |
| AT#BND=? | <p>Test command returns the supported range of values of the parameter <band>.</p> <p>Note: the range of values differs between triband modules and quadriband modules</p> |

2.9.1.32 #SKIPESC – skip escape sequence

| #SKIPESC – Skip escape sequence | |
|---|---|
| AT#SKIPESC [=<mode>] | <p>Set command enables/disables the escape sequence +++ transmission to the receiver during a data connection.</p> <p>Parameter:</p> <p><mode> - skip setting</p> <ul style="list-style-type: none"> 0 – do not skip (send escape sequence)(default) 1 – skip (do not send escape sequence) <p>Note: in case of an FTP connection, the escape sequence is not transmitted, regardless of the command setting.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command.</p> |
| AT#SKIPESC? | <p>Read command reports the current skip setting in the format:</p> <p>#SKIPESC: <mode>.</p> |
| AT#SKIPESC=? | <p>Test command reports supported range of values for <mode> parameter.</p> |

2.9.2 FTP AT commands

2.9.2.1 #FTPOPEN – FTP Open command

| #FTPOPEN – FTP Open command | |
|---|---|
| AT#FTPOPEN= <server:port> , <username> , <password> , <mode> | <p>Execution command opens an FTP connection toward the FTP server.</p> <p>Parameter: <server:port> - address and port of FTP server (default port 21) enclosed in double quotes. <username> - authentication user identification string for FTP, enclosed in double quotes <password> - authentication password for FTP, enclosed in double quotes <mode> - 0 - active mode (default) 1 – passive mode</p> |

2.9.2.2 #FTPCLOSE – FTP Close command

| #FTPCLOSE – FTP Close command | |
|--------------------------------------|---|
| AT#FTPCLOSE | Execution command closes an FTP connection. |

2.9.2.3 #FTPPUT – FTP Put command

| #FTPPUT – Sends a file to the FTP server | |
|---|--|
| AT#FTPPUT= <filename> | <p>Execution command, issued during an FTP connection, opens a data connection in order to send a file to the FTP server. If the data connection succeeds, a CONNECT indication is sent, otherwise a NO CARRIER indication is sent.</p> <p>The file has to be sent on the serial port. Then use the escape sequence +++ to close the data connection.</p> <p>Parameter: <filename> - name of the file enclosed in double quotes.</p> |

2.9.2.4 #FTPPUTPH – FTP Put photo command

| #FTPPUTPH – Sends a photo to the FTP server | |
|--|---|
| AT#FTPPUTPH= <filename> | <p>Execution command opens a data connection in order to send to the FTP server the last photo taken issuing AT#TPHOTO.</p> <p>Parameter: <filename> - name of the file (enclosed in double quotes) on the FTP server side.</p> <p>Note: the file transfer type (command AT#FTPTYPE) has to be 0 (binary) in order to send the photo the right way.</p> <p>Note: The command has effect only if an FTP connection has been already opened.</p> |
| Example | <pre>at#gprs=1 +IP: ###.###.###.### OK at#camon OK at#tphoto OK at#ftpopen="xxx.xxx.xxx.xxx", <usern.>, <passw.>, 0 OK at#ftptype=0 OK at#ftpputph="photo.jpg" OK at#ftpclose OK</pre> |

2.9.2.5 #FTPGET – FTP Get command

| #FTPGET – Get a file from the FTP server | |
|---|--|
| AT#FTPGET= <filename> | <p>Execution command, issued during an FTP connection, opens a data connection in order to receive a file from the FTP server. If the data connection succeeds a CONNECT indication is sent, otherwise a NO CARRIER indication is sent.</p> <p>The file is received on the serial port.</p> <p>Parameter: <filename> - file name enclosed in double quotes.</p> |

2.9.2.6 #FTPTYPE – FTP Type command

| #FTPTYPE – Sets file transfer type | |
|---|---|
| AT#FTPTYPE [=<type>] | Set command sets the file transfer type. Parameter: <type> - file transfer type: 0 - binary 1 - ascii Note: If the parameter is omitted then the behaviour of Set command is the same of Read command. |
| #FTPTYPE? | Read command returns the current setting for <type> #ftptype: <type> |
| #FTPTYPE=? | Test command returns the range for parameter <type> #ftptype: (0,1) |

2.9.2.7 #FTPMSG – FTP read message command

| #FTPMSG – FTP read message command | |
|---|--|
| AT#FTPMSG | Execution command returns the last response from the server. |

2.9.2.8 #FTPDELE – FTP Delete command

| #FTPDELE – FTP delete command | |
|---|--|
| AT#FTPDELE= <filename> | Execution command deletes a file from the remote working directory. Parameter: <filename> - file name enclosed in double quotes. |

2.9.2.9 #FTPPWD – FTP print working directory command

| #FTPPWD – FTP print working directory command | |
|--|--|
| AT#FTPPWD | Execution command shows the current working directory on FTP server. |

2.9.2.10 #FTPCWD – FTP change working directory command

| #FTPCWD – FTP change working directory command | |
|---|---|
| AT#FTPCWD= <dirname> | Execution command changes the working directory on FTP server. Parameter: <dirname> - directory name enclosed in double quotes. |

2.9.2.11 #FTPLIST – FTP List command

| #FTPLIST – FTP List command | |
|---------------------------------------|--|
| AT#FTPLIST [=<name>] | <p>Execution command opens a data connection in order to receive from the server the list of contents of the specified directory or the properties of the specified file.</p> <p>Parameter: <name> - directory or file name enclosed in double quotes.</p> <p>If parameter is omitted this command opens a data connection in order to receive from the server the list of contents of the working directory.</p> |

2.9.3 Enhanced Easy GPRS® Extension AT commands

2.9.3.1 #USERID – Authentication User ID control

| #USERID – Authentication User ID control | |
|---|--|
| AT#USERID [=<user>] | Set command sets the user identification string to be used during the authentication step. Parameter: <user> - authentication User ID - any string value (enclosed in double quotes) up to max length reported in the Test command. Note: If parameter is omitted then the behaviour of Set command is the same of Read command. |
| AT#USERID? | Read command reports the current value of the parameter <user>. |
| AT#USERID=? | Test command returns the maximum allowed length of the string parameter <user>. |
| Example | AT#USERID = "myName " OK AT#USERID? #USERID: "myName " OK |

2.9.3.2 #PASSW – Authentication Password control

| #PASSW – Authentication Password control | |
|---|--|
| AT#PASSW= <pwd> | Set command sets the user password string to be used during the authentication step. Parameter: <pwd> - authentication password - any string value (enclosed in double quotes) up to max length reported in the Test command. |
| AT#PASSW=? | Test command reports the maximum password length. |
| Example | AT#PASSW = "myPassword" OK |

2.9.3.3 #PKTSZ –Packet Size control

| #PKTSZ –Packet Size control | |
|-------------------------------------|--|
| AT#PKTSZ [=<size>] | <p>Set command sets the default packet size to be used by the TCP/UDP/IP stack for data sending.</p> <p>Parameter: <size> - packet size in bytes 0 - automatically chosen by the device 1..512 - packet size in bytes</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#PKTSZ? | Read command reports the current value of the parameter <size>. |
| AT#PKTSZ=? | Test command returns the allowed values for the parameter <size>. |
| Example | <pre>AT#PKTSZ = 100 OK AT#PKTSZ? #PKTSZ: 100 OK</pre> |

2.9.3.4 #DSTO – Data Sending TimeOut control

| #DSTO –Data Sending TimeOut control | |
|--|--|
| AT#DSTO [=<time>] | <p>This timeout applies when the data to be sent is less than one full packet size and whose sending would have been delayed for a undefined time until new data to be sent is received and the full packet size is reached.</p> <p>Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one.</p> <p>Parameter: <time> - packet sending timeout in 100ms units 0 - no timeout, wait forever for packets to be completed before send. 1..255 hundreds of ms</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#DSTO? | Read command reports the current value of the parameter <time>. |
| AT#DSTO=? | Test command returns the allowed values for the parameter <time>. |
| Example | <pre>AT#DSTO = 10 (1 sec. Timeout) OK AT#DSTO? #DSTO: 10 OK</pre> |
| Note | In order to avoid possible low performances issues, it is suggested to set the <time> parameter to a value greater than 5 |

2.9.3.5 #SKTTO – Socket inactivity timeout control

| #SKTTO – Socket inactivity timeout control | |
|---|---|
| AT#SKTTO [=<time>] | <p>This timeout applies when the no data is exchanged in the socket for a long time and therefore the socket connection is automatically closed and the GPRS context deactivated.</p> <p>Set command sets the maximum time that the module awaits without data exchange on the socket before closing the socket and deactivating the GPRS context.</p> <p>Parameter: <time> - socket inactivity timeout in seconds units 0 - no timeout. 1...65535 s</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#SKTTO? | Read command reports the current value of the parameter <time>. |
| AT#SKTTO=? | Test command returns the allowed values for the parameter <time>. |
| Example | <pre>AT#SKTTO = 30 (30 sec. Timeout) OK AT#SKTTO? #SKTTO: 30 OK</pre> |

2.9.3.6 #SKTSET – Socket definition control

| #SKTSET – Socket definition control | |
|---|--|
| AT#SKTSET [=<socket type>, <remote port>, <remote address> ,[<closure type>] ,[<local port>]] | <p>Set command sets the socket parameters values.</p> <p>Parameter:</p> <p><socket type> - socket protocol type 0 - TCP 1 - UDP</p> <p><remote port> - remote host port to be opened 0..65535 - port number</p> <p><remote address> - address of the remote host (enclosed in double quotes). This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: <host name> <p><closure type> - socket closure behaviour for TCP (optional) 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) this parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p><local port> - local host port to be used on UDP socket 0..65535 - port number this parameter is valid only for UDP socket type, for TCP sockets shall be left unused.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#SKTSET? | <p>Read command reports the current value of the parameters <socket type>,<remote port>,<remote address>,<closure type>,<local port>.</p> |
| AT#SKTSET=? | <p>Test command returns the allowed values for the parameters.</p> |
| Example | <pre>AT#SKTSET = 0,1024,"123.255.020.001" OK Or AT#SKTSET=0,1024,"www.telit.net" OK</pre> |
| Note | <p>The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the #SKTSET command, then no error message will be issued to the #SKTSET command.</p> <p>The DNS Query to be successful requests that:</p> <ul style="list-style-type: none"> - the GPRS context 1 is correctly set with AT+CGDCONT - the authentication parameters are set (#USERID, #PASSW) - the GPRS coverage is enough to permit a connection. |

2.9.3.7 #SKTOP – Socket Open command

| #SKTOP – Socket Open Command | |
|-------------------------------------|--|
| AT#SKTOP | Execution command activates the context number 1, proceeds with the authentication with the user ID and password previously set with #USERID #PASSW commands, and opens a socket connection with the host specified in the #SKTSET command. Eventually before opening the socket connection it issues automatically a DNS query to solve the IP address of the host name. If the connection succeeds a CONNECT indication is sent, otherwise a NO CARRIER indication is sent. |
| Example | AT#SKTOP ... GPRS context activation, authentication and socket open... CONNECT |

2.9.3.8 #QDNS – Query DNS

| #QDNS – Query DNS | |
|---------------------------------------|---|
| AT#QDNS= <host name> | Execution command activates a context, authenticates and proceeds to execute a DNS query to solve the host name into an IP address. Parameter: <host name> - host name enclosed in double quotes. If the DNS query is successful then the IP address will be reported in the result code: #QDNS:"<host name>",< IP address> the <IP address> is in the format: xxx.xxx.xxx.xxx |
| Note | This command requires that the first context parameters, the authentication par. are correctly set and that the GPRS network is present. From Version D the command does the context deactivation if the context was not previously active, Hence if the context was already activated with #GPRS command, then the context after this command is left active. |

2.9.3.9 #SKTCT – Socket TCP Connection Timeout

| #SKTCT – Socket TCP Connection Timeout | |
|---|---|
| AT#SKTCT [=<timeout>] | <p>Set command sets the TCP first connection timeout for the initial connection answer from the other TCP peer.</p> <p>Parameter: <timeout> - TCP first connection answer timeout in 100ms units 10...1200 hundreds of ms (default value: 600)</p> <p>Note: This timeout applies only to TCP connection request; therefore only to the time that the TCP stack waits for the answer to its connection. The time for activate the GPRS and resolving the name with the DNS query (if the peer was specified by name and not by address) is not counted in this timeout.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#SKTCT? | Read command reports the current value of the parameter <timeout>. |
| AT#SKTCT=? | Test command returns the allowed values for the parameter <timeout>. |
| Example | <pre>AT#SKTCT=600 OK ...socket first connection answer timeout has been set to 60 s.</pre> |

2.9.3.10 #SKTSAV – Socket Parameters Save Command

| #SKTSAV – Socket Parameters Save Command | |
|---|---|
| AT#SKTSAV | <p>Execution command saves the actual Parameters of the Socket in the NVM of the device.</p> <p>The values stored are:</p> <ul style="list-style-type: none"> - User Name - Password - Packet Size - Socket inactivity timeout - Data sending timeout - Socket type (UDP/TCP) - Remote port - Remote address - TCP first connection answer timeout |
| Example | <pre>AT#SKTSAV OK ...socket parameters have been saved in NVM</pre> |
| Note | If some parameters have not been previously specified then a default value will be taken. |

2.9.3.11 #SKTRST – Socket Parameters Reset Command

| #SKTRST – Socket Parameters Reset Command | |
|--|---|
| AT#SKTRST | <p>Execution command resets the actual Parameters of the Socket in the NVM of the device to the default ones.</p> <p>The values reset are:</p> <ul style="list-style-type: none"> - User Name (none) - Password (none) - Packet Size - Socket inactivity timeout - Data sending timeout - Socket type (UDP/TCP) - Remote port (none) - Remote address (none) - TCP first connection answer timeout |
| Example | <pre>AT#SKTRST OK ...socket parameters have been reset</pre> |

2.9.3.12 #GPRS – GPRS context activation control

| #GPRS – GPRS context activation control | |
|--|---|
| AT#GPRS [=<mode>] | <p>Execution command deactivates/activates the GPRS context, eventually proceeding with the Authentication with the parameters given with #PASSW and #USERID depending on the value of the parameter <mode>.</p> <p>Parameter: <mode> - GPRS mode 0 - GPRS context deactivation request 1 - GPRS context activation request</p> <p>In the case that the GPRS context has been activated, the result code OK is preceded by the intermediate result code: +IP: <ip_address_obtained> reporting the local IP address obtained from the network.</p> <p>Note: If parameter is omitted the command reports the current status of the GPRS context with the code: #GPRS: <mode>. 0 - GPRS context deactivated 1 - GPRS context activated 2 – GPRS context activation pending.</p> |
| AT#GPRS? | Read command has the same effect as Execution command when parameter is omitted. |
| AT#GPRS=? | Test command returns the allowed values for the parameter <mode>. |
| Example | <pre>AT#GPRS = 1 +IP: 129.137.1.1 OK Now GPRS Context has been activated and our IP is 129.137.1.1 Or AT#GPRS=0 OK Now GPRS context has been deactivated, IP is lost.</pre> |

2.9.3.13 #SKTD – Socket Dial

| #SKTD - Socket Dial | |
|--|--|
| AT#SKTD [=<socket type>, <remote port>, <remote address> ,[<closure type>] ,[<local port>]] | Set command opens the socket towards the peer specified in the parameters. Parameter: <socket type> - socket protocol type 0 - TCP 1 - UDP <remote port> - remote host port to be opened 0...65535 - port number <remote address> - address of the remote host (enclosed in double quotes) to be contacted. This parameter can be either: <ul style="list-style-type: none"> - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: <host name> <closure type> - socket closure behaviour for TCP (optional) 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) this parameter is valid only for TCP socket type, for UDP sockets shall be left unused. <local port> - local host port to be used on UDP socket 0...65535 - port number this parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command. |
| AT#SKTD? | Read command returns the current value for <socket type>, <remote port>, "<remote address>", <closure type>, <local port> |
| AT#SKTD=? | Test command returns the allowed values for the parameters. |
| Example | AT#SKTD = 0,1024,"123.255.020.001",255 CONNECT or AT#SKTD = 1,1024,"123.255.020.001",,1025 CONNECT In this way my local port 1025 is opened to the remote port 1024 or AT#SKTD=0,1024,"www.telit.net", 255 CONNECT |
| Note | The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the #SKTD command, then an error message will be issued to the #SKTD command. The command to be successful requests that: <ul style="list-style-type: none"> - the GPRS context 1 is correctly set with AT+CGDCONT - the authentication parameters are set (#USERID, #PASSW) the |

#SKTD - Socket Dial

GPRS coverage is enough to permit a connection

- the GPRS has been activated with AT#GPRS=1

NOTE: the main difference between this command and the AT#SKTOP is that this command does not interact with the GPRS context status, leaving it ON or OFF according to the #GPRS setting, therefore when the connection made with AT#SKTD is closed the context (and hence the local IP address) is maintained.

2.9.3.14 #SKTL – Socket Listen

| #SKTL - Socket Listen | |
|---|--|
| AT#SKTL [=<mode>, <socket type>, <input port>, [<closure type>]] | <p>Execution command opens/closes the socket listening for connection requests on the port specified in the parameters depending from the parameter <mode>.</p> <p>Parameter:</p> <p><mode> - socket mode 0 - socket inactive (close listen) 1 - socket listening (start listen)</p> <p><socket type> - socket protocol type 0 - TCP 1 - UDP (not implemented)</p> <p><input port> - local host input port to be listened 0...65535 - port number</p> <p><closure type> - socket closure behaviour for TCP (optional) 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++)</p> <p>this parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p>Command returns the OK result code if successful, and when a connection request incomes on the input port, if the sender is not filtered by the internal firewall (see command #FRWL), an unsolicited code is reported:</p> <p>+CONN FROM: <remote address></p> <p>where <remote address> is the host address of the remote machine that contacted the device.</p> <p>Then the connection is accepted and when established the CONNECT</p> <p>Indication is given and the modem goes into data transfer mode.</p> <p>On connection close the socket is closed an no listen is anymore active.</p> <p>The same applies when context is closed with #GPRS=0.</p> <p>If the context is closed by the network while in listening, forcing us to stop listening, then an unsolicited code is reported: #SKTL: ABORTED</p> <p>Note: If all parameters are omitted the command returns the last settings of parameters <socket type>, <input port> and <closure type> done when opening socket listening. The output is in the format:</p> |

| #SKTL - Socket Listen | |
|------------------------------|---|
| | #SKTL: <socket type>,<input port>,<closure type> |
| AT#SKTL? | Read command has the same effect as Execution command when parameters are omitted. |
| AT#SKTL=? | Test command returns the allowed values for the parameters <socket type>, <input port> and <closure type>. |
| Example | <pre> Activate GPRS: AT#GPRS=1 +IP: ###.###.###.### OK Start listening ... AT#SKTL=1,0,1024 OK or AT#SKTL = 1,0,1024, 255 OK Receive connection requests... +CONN FROM: 192.164.2.1 CONNECT ... exchange data with the remote host... send escape sequence... +++ NO CARRIER Now listen is not anymore active, in order to listen again: AT#SKTL = 1,0,1024, 255 OK Now in order to stop listening .. AT#SKTL=0,0,1024, 255 OK </pre> |
| Note | <p>The command to be successful requests that:</p> <ul style="list-style-type: none"> - the GPRS context 1 is correctly set with AT+CGDCONT - the authentication parameters are set (#USERID, #PASSW) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with AT#GPRS=1 <p>NOTE: the main difference between this command and the AT#SKTD is that this command does not contact any peer, nor does any interaction with the GPRS context status, leaving it ON or OFF according to the #GPRS setting, therefore when the connection made with AT#SKTL is closed the context (and hence the local IP address) is maintained.</p> <p>The improving command at@sktl has been defined</p> |

2.9.3.15

2.9.3.16 @SKTL – Socket Listen

| @SKTL - Socket Listen | |
|---|--|
| AT@SKTL [=<mode>, <socket type>, <input port>, <closure type>] | <p>Execution command opens/closes the socket listening for connection requests on the port specified in the parameters depending from the parameter <mode>.</p> <p>Parameter:</p> <p><mode> - socket mode 0 - socket inactive (close listen) 1 - socket listening (start listen)</p> <p><socket type> - socket protocol type 0 – TCP</p> <p><input port> - local host input port to be listened 0...65535 - port number</p> <p><closure type> - socket closure behaviour for TCP (optional) 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++)</p> <p>this parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p>Command returns the OK result code if successful, and when a connection request incomes on the input port, if the sender is not filtered by the internal firewall (see command #FRWL), an unsolicited code is reported:</p> <p>+CONN FROM: <remote address> where <remote address> is the host address of the remote machine that contacted the device.</p> <p>Then the connection is accepted and when established the CONNECT Indication is given and the modem goes into data transfer mode. On connection close the socket is closed and no listen is anymore active.</p> <p>The same applies when context is closed with #GPRS=0. If the context is closed by the network while in listening, forcing us to stop listening, then an unsolicited code is reported: @SKTL: ABORTED</p> <p>Note: If all parameters are omitted the command returns the last settings of parameters <socket type>, <input port> and <closure type> done when opening socket listening. The output is in the format: @SKTL:<mode>,<socket type>,<input port>,<closure type></p> |
| AT@SKTL? | <p>Read command has the same effect as Execution command when parameters are omitted.</p> |

| @SKTL - Socket Listen | |
|------------------------------|---|
| AT@SKTL=? | Test command returns the allowed values for the parameters <mode>, <socket type>, <input port> and <closure type>. |
| Example | <pre> Activate GPRS: AT#GPRS=1 +IP: ###.###.###.### OK Start listening ... AT@SKTL=1,0,1024 OK or AT@SKTL = 1,0,1024, 255 OK Receive connection requests... +CONN FROM: 192.164.2.1 CONNECT ... exchange data with the remote host... send escape sequence... +++ NO CARRIER Now listen is not anymore active, in order to listen again: AT@SKTL = 1,0,1024, 255 OK Now in order to stop listening .. AT@SKTL=0,0,1024, 255 OK </pre> |
| Note | <p>The command to be successful requests that:</p> <ul style="list-style-type: none"> - the GPRS context 1 is correctly set with AT+CGDCONT - the authentication parameters are set (#USERID, #PASSW) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with AT#GPRS=1 <p>NOTE: the main difference between this command and the AT#SKTD is that this command does not contact any peer, nor does any interaction with the GPRS context status, leaving it ON or OFF according to the #GPRS setting, therefore when the connection made with AT@SKTL is closed the context (and hence the local IP address) is maintained.</p> |

2.9.3.17 #FRWL – Firewall setup

| #FRWL - Firewall setup | |
|--|--|
| AT#FRWL [=<action> ,<ip_address> ,<net mask>] | <p>Execution command controls the internal firewall settings. The firewall applies for INCOMING (listening) connections; OUTGOING connections will be always done regardless of the firewall settings. Firewall General policy is DROP, therefore all packets that are not included into an ACCEPT chain rule will be silently discarded.</p> <p>Parameter:</p> <p><action> - command action 0 - remove selected chain 1 - add an ACCEPT chain 2 - reset all chains (DROP everything), <ip_address> and <net mask> has no meaning in this case.</p> <p><ip_address> - remote address (enclosed in double quotes) to be added into the ACCEPT chain - any valid IP address in the format: xxx.xxx.xxx.xxx</p> <p><net mask> - mask (enclosed in double quotes) to be applied on the <ip_address> - any valid IP address mask in the format: xxx.xxx.xxx.xxx</p> <p>Command returns OK result code if successful. When a packet incomes from the IP address <incoming IP>, the firewall chain rules will be scanned for matching with the following criteria: <incoming IP> & <net mask> = <ip_address> ? if the result is yes, then the packet is accepted and the rule scan is finished, otherwise the next chain is taken into account until the end of the rules when the packet is silently dropped if no matching was found.</p> <p>Note: If all parameters are omitted reports the list of all ACCEPT chain rules registered in the Firewall settings in the format: #FRWL: <ip_address>,<net mask> #FRWL: <ip_address>,<net mask> OK</p> |
| AT#FRWL? | Read command has the same effect as Execution command when parameters are omitted. |
| AT#FRWL=? | Test command returns the allowed values for the parameters. |
| Example | <p>Let assume we want to accept connections only from our devices which are on the IP addresses ranging from 197.158.1.1 to 197.158.255.255</p> <p>We need to add the following chain to the firewall:</p> |

| #FRWL - Firewall setup | |
|-------------------------------|---|
| | AT#FRWL=1, "197.158.1.1", "255.255.0.0" |
| Note | <p>For outgoing connections made with AT#SKTOP and AT#SKTD the remote host is dynamically inserted into the ACCEPT chain for all the connection duration. Therefore the #FRWL command shall be used only for defining either the AT#SKTL or the AT@SKTL behaviour, deciding which hosts are allowed to connect to the local device, since the packets that are dropped from the firewall are not sensed by the listening socket.</p> <p>Rules are not saved in NVM, at start-up the rules list will be empty.</p> |

2.9.4 Easy Camera® management AT commands

2.9.4.1 #CAMON – Camera ON

| #CAMON – Camera ON Command | |
|-----------------------------------|---|
| AT#CAMON | Execution command turns the Camera ON. |
| Example | AT#CAMON OK ... camera is now powered up. |

2.9.4.2 #CAMOFF – Camera OFF

| #CAMOFF – Camera off Command | |
|-------------------------------------|--|
| AT#CAMOFF | Execution command turns the Camera OFF. |
| Example | AT#CAMOFF OK ... camera is now powered down. |

2.9.4.3 #TPHOTO – Camera Take Photo

| #TPHOTO – Camera Take Photo Command | |
|--|---|
| AT#TPHOTO | Execution command is used to take the photo and to store it in the MODULE memory. |
| Example | AT#TPHOTO OK ... the camera has taken the photo and it is now stored on the MODULE memory. |
| Note | The photo is kept in the MODULE RAM memory, therefore after a power off it is lost. There's only 1 position for the photo, every photo will overwrite the previous. The photo is taken during IDLE time, if the mobile is busy on network operations, (e.g. during a call) the photo cannot be taken. |

2.9.4.4 #RPHOTO – Camera Read Photo

| #RPHOTO – Camera Read Photo Command | |
|--|---|
| AT#RPHOTO | Issuing this Execution command the MODULE starts to flush the photo stored in its memory to the serial line, ending it with the OK code. |
| Example | AT#RPHOTO xxxxxxxxxxxxxx (binary digits of the JPEG image) <cr><lf>OK<cr><lf> ... the photo has been flushed to the serial line. |
| Note | The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control. |

2.9.4.5 #OBJL – Object List

| #OBJL – Object List Command | |
|------------------------------------|---|
| AT#OBJL[=<obj>] | <p>Execution command reports the list of the objects stored in the MODULE memory.</p> <p>Parameter: <obj> - a string parameter (enclosed in double quotes) which specify the type of objects to be listed.</p> <p>Note. The only value for <obj> is "IMG" - Image object</p> <p>The output format is: #OBJL: <filename>,<size> where <filename> - is the name of the object <size> - is the size of the object in bytes</p> <p>Note: The only value for <filename> is Snapshot</p> |
| Example | <pre>AT#OBJL="IMG" #OBJL: Snapshot,47224 OK</pre> |

2.9.4.6 #OBJR – Object Read

| #OBJR – Object Read Command | |
|---|--|
| AT#OBJR= <obj>, "Snapshot" | <p>Issuing this Execution command the MODULE starts to flush the photo stored in its memory to the serial line without ending it with OK.</p> <p>Parameter: <obj> - a string parameter (enclosed in double quotes) which specify the type of objects to be listed.</p> <p>Note: The only value for <obj> is "IMG" - Image object "Snapshot" - is the name of the object.</p> |
| Example | <pre>AT#OBJR="IMG", "Snapshot" xxxxxxxxxxxxx (binary digits of the JPEG image) ... the photo has been flushed to the serial line.</pre> |
| Note | <p>The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.</p> |

2.9.4.7 #CAMQUA – Camera Select Quality of Photo

| #CAMQUA - Camera Select Quality of Photo | |
|---|---|
| AT#CAMQUA [=<qual>] | Set command sets the quality of the photo stored on the memory of the MODULE Parameter: <qual> - photo quality 0 - low (Jpeg compression high - low quality of picture) 1 - medium (Jpeg compression medium - med. quality of picture) 2 - high (Jpeg compression low - high quality of picture) – default Note: If parameter is omitted then the behaviour of Set command is the same of Read command |
| AT#CAMQUA? | Read command reports the current value of the parameter <qual> |
| AT#CAMQUA=? | Test command returns the allowed values for parameter <qual>. |
| Example | AT#CAMQUA=2 OK |
| Note | Increasing the photo quality increases its size. |

2.9.4.8 #CMODE – Camera Select Operating MODE

| #CMODE - Camera Select Operating MODE | |
|--|--|
| AT#CMODE [=<mode>] | Set command sets the operating mode of the MODULE camera Parameter: <mode> - camera operating mode 0 - daylight (short exposure) - default 1 - nightlight (long exposure) Note: If parameter is omitted then Set command behaviour is the same of Read command. |
| AT#CMODE? | Read command reports the current value of the parameter <mode> |
| AT#CMODE=? | Test command returns the allowed values for the parameter <mode>. |
| Example | AT#CMODE=0 OK |

2.9.4.9 #SELCAM – Camera Model selection

| #SELCAM - Camera Model selection | |
|---|---|
| AT#SELCAM= <cam> | Set command selects current camera model Parameter: <cam> - camera model 0 – automatic detection (default) 1 – AGILENT camera 2 – TRANSHIP camera 3 – reserved for future use 4 – reserved for future use 5 – reserved for future use Note: If GPS is present it's not possible to set AT#SELCAM=1 |
| AT#SELCAM? | Read command reports the current value of the parameter <cam> |
| AT#SELCAM=? | Test command returns the allowed values for parameter <cam>. |
| Example | AT#SELCAM=? #SELCAM: (0-5) OK |

2.9.4.10 #CAMEN – Camera ON/OFF

| #CAMEN - Camera ON/OFF | |
|-------------------------------------|--|
| AT#CAMEN= <status> | Execution command turns camera ON/OFF Parameter: <status> - camera status 0 – turns camera OFF 1 – turns camera ON |
| AT#CAMEN? | Read command reports the current value of the parameter <status> and if camera is ON the current camera model in the format: #CAMEN: 0 if camera is OFF #CAMEN: 1,<cam> if camera is ON where <cam>: 1 – AGILENT camera 2 – TRANSHIP camera |
| AT#CAMEN=? | Test command returns the allowed values for parameter <status>. |
| Example | AT#CAMEN=? #CAMEN: (0-1) OK |

2.9.4.11 #CAMRES – Camera resolution

| #CAMRES – Camera resolution | |
|------------------------------------|--|
| AT#CAMRES =<res> | Set command sets current camera resolution Parameter: <res> - camera resolution 0 – VGA photo output (640x480 - default) 1 – QVGA photo output (320x240) 2 - QQVGA photo output (160x120) 3 - reserved for future use 4 - reserved for future use |
| AT#CAMRES? | Read command reports the current value of the parameter <res>. |
| AT#CAMRES=? | Test command returns the allowed values for parameter <res>. |

2.9.4.12 #CAMCOL – Camera colour mode selection

| #CAMCOL – Camera colour mode selection | |
|---|---|
| AT#CAMCOL= <col> | Set command sets current colour mode Parameter: <col> - camera colour mode 0 – colour mode (default) 1 – Black&White mode |
| AT#CAMCOL? | Read command reports the current value of the parameter <col>. |
| AT#CAMCOL=? | Test command returns the allowed values for parameter <col>. |
| Note | It has no effect with camera model AGILENT |

2.9.4.13 #CAMZOOM – Camera zoom setting

| #CAMZOOM – Camera zoom setting | |
|---------------------------------------|--|
| AT#CAMZOOM= <zoom> | Set command sets current zoom Parameter: <zoom> - camera zoom 0 - no zoom (x1 - default) 1 - zoom x2 2 - zoom x4 3 - reserved for future use Note: With camera model TRANSCHIP the setting AT#CAMZOOM=2 has the same effect as AT#CAMZOOM=1 |
| AT#CAMZOOM? | Read command reports the current value of the parameter <zoom>. |
| AT#CAMZOOM=? | Test command returns the allowed values for parameter <zoom>. |
| Note | With camera model AGILENT the behaviour of AT#CAMZOOM depends on the last setting of AT#CAMRES: 1) If AT#CAMRES=0, the settings AT#CAMZOOM=1 and AT#CAMZOOM=2 have no effect. 2) If AT#CAMRES=1, the effect of setting AT#CAMZOOM=2 is the same as AT#CAMZOOM=1. |

2.9.4.14 #CAMTXT – Camera time/date overprint

| #CAMTXT – Camera time/date overprint | |
|---|--|
| AT#CAMTXT= <ov> | Set command enables/disables data/time overprinting Parameter: <ov> - time/date overprinting mode 0 – no overprinting (default) 1 – time info printed at the bottom of picture 2 - date info printed at the bottom of picture 3 – time&date info printed at the bottom of picture 4 – reserved for future use |
| AT#CAMTXT? | Read command reports the current value of the parameter <ov>. |
| AT#CAMTXT=? | Test command returns the allowed values for parameter <ov>. |
| Note | It has no effect with camera model AGILENT |

2.9.5 Email management AT commands

2.9.5.1 #ESMTP – Email SMTP server

6.10.2.1 #ESMTP – Email SMTP server

| | |
|---|--|
| AT#ESMTP [=<smtp>] | Set command sets the SMTP server used for EMAIL sending. SMTP server can be specified as IP address or as nick name. Parameter: <smtp> - SMTP server address enclosed in double quotes. This parameter can be either: <ul style="list-style-type: none"> - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: <host name> Note: If parameter is omitted then the behaviour of Set command is the same of Read command |
| AT#ESMTP? | Read Command reports the current value of the parameter <smtp> |
| AT#ESMTP=? | Test command returns the max character length for the parameter <smtp>. |
| Example | AT#ESMTP="smtp.mydomain.com" OK |
| Note | The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the email. |

2.9.5.2 #EADDR – Email sender address

6.10.2.2 #EADDR – Email sender address

| | |
|--|--|
| AT#EADDR [=<e-add>] | Set command sets the sender address string to be used for sending the Email. Parameter: <e-add> - sender address (enclosed in double quotes). <ul style="list-style-type: none"> - any string value up to max length reported in the Test command. By default "" Note: If parameter is omitted then the behaviour of Set command is the same of Read command |
| AT#EADDR? | Read command reports the current value of the parameter <e-add> |
| AT#EADDR=? | Test command returns the maximum allowed length of the string parameter <e-add>. |
| Example | AT#EADDR = "me@email.box.com" OK AT#EADDR? #EADDR: " me@email.box.com " OK |
| Note | |

2.9.5.3 #EUSER – Email authentication USER NAME

| 6.10.2.2 #EUSER – Email authentication USER NAME | |
|---|--|
| AT#EUSER [=<e-user>] | Set command sets the user identification string to be used during the authentication step of the SMTP to be the string <e-user>. Parameter: <e-user> - authentication User ID for email enclosed in double quotes. - any string value up to max length reported in the Test command. By default "" Note: If parameter is omitted then the behaviour of Set command is the same of Read command |
| AT#EUSER? | Read command reports the current value of the parameter <e-user> |
| AT#EUSER=? | Test command returns the maximum allowed length of the string parameter <e-user>. |
| Example | AT#EUSER = "myE-Name " OK AT#EUSER? #EUSER: "myE-Name " OK |
| Note | If no authentication is required then the e-user parameter shall be empty "". Note that it is a different user field than the one used for GPRS authentication (see AT#USERID). |

2.9.5.4 #EPASSW – Email authentication PASSWORD

| 6.10.2.2 #EPASSW – Email authentication PASSWORD | |
|---|---|
| AT#EPASSW= <e-pwd> | Set command sets the user identification string to be used during the authentication step of the SMTP to be the string <user>. Parameter: <e-pwd> - authentication Password for Email enclosed in double quotes. - any string value up to max length reported in the Test command. By default "" |
| AT#EPASSW=? | Test command returns the maximum allowed length of the string parameter <e-pwd>. |
| Example | AT#USERID = "myPassword " OK |
| Note | If no authentication is required then the <e-pwd> parameter shall be empty "". Note that it is a different pwd field than the one used for GPRS authentication (see AT#PASSW). |

2.9.5.5 #SEMAIL - Send Email

| #SEMAIL - Send Email | |
|---|---|
| AT#SEMAIL=<da> ,<subj>,<att> ,[<filename>] | <p>Execution command sends an Email message.</p> <p>Parameter:</p> <p><da> - destination address enclosed in double quotes.</p> <p><subj> - subject of the message enclosed in double quotes.</p> <p><att> - attach image flag 0 - don't attach any image 1 - attach the snapshot taken (must be already been taken...)</p> <p><filename> - image name (default is "snapshot.jpg")</p> <p>The device responds to the command with the prompt '>' and awaits for the message body text. To complete the operation send Ctrl-Z char (0x1A hexadecimal) ,to exit without writing the message send ESC char (0x1B hexadecimal).</p> <p>If email message is successfully sent, then the response is OK. If message sending fails for some reason, an error code is reported</p> <p>Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the OK or ERROR/+CMS ERROR:<err> response before issuing further commands. Note: sending a mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take over 1 minute.</p> |
| Example | <pre>AT#SEMAIL="me@myaddress.com","subject of the mail",1 ➤ message body... this is the text of the mail message... CTRL-Z ..wait.. OK Message has been sent.</pre> |
| Note | |

2.9.5.6 #EMAILACT – E-mail context activation control

| #EMAILACT – E-mail context activation control | |
|--|---|
| AT# EMAILACT [=<mode>] | <p>Set command deactivates/activates the GPRS context, eventually proceeding with the Authentication with the parameters given with #PASSW and #USERID depending on the value of the parameter <mode>.</p> <p>Parameter: <mode> - GPRS mode 0 – GPRS context deactivation request 1 – GPRS context activation request</p> <p>Note: If parameter is omitted the command reports the current status of the GPRS context for the e-mail, with the code: #EMAILACT: <mode>. <mode> - GPRS mode 0 - GPRS context deactivated 1 - GPRS context activated</p> |
| AT#EMAILACT? | Read command has the same effect of Execution command when parameter is omitted. |
| AT# EMAILACT =? | Test command returns the allowed values for the parameter <mode>. |
| Example | <p>AT#EMAILACT = 1 OK</p> <p>Now GPRS Context has been activated Or AT# EMAILACT=0 OK Now GPRS context has been deactivated.</p> |
| Note | |

2.9.5.7 #EMAILD – E-mail socket dial

| #EMAILD – Email sending through GPRS context | |
|---|--|
| AT#EMAILD=<da> , <subj>, <att>, [<filename>] | <p>Execution command sends an e-mail message if GPRS context has already been activated with AT# EMAILACT =1.</p> <p>Parameter:</p> <p><da> - destination address enclosed in double quotes.</p> <p><subj> - subject of the message enclosed in double quotes</p> <p><att> - attach image flag 0 - don't attach any image 1 - attach the snapshot taken (must be already been taken...)</p> <p><filename> - image name (default is "snapshot.jpg")</p> <p>The device responds to the command with the prompt '>' and awaits for the message body text. To complete the operation send Ctrl-Z char (0x1A hexadecimal) , to exit without writing the message send ESC char (0x1B hexadecimal).</p> <p>If email message is successfully sent, then the response is OK. If message sending fails for some reason, an error code is reported</p> <p>Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the OK or ERROR/+CMS ERROR:<err> response before issuing further commands. Note: sending a mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take over 1 minute.</p> |
| Example | <pre>AT#EMAILD="me@myaddress.com", "subject of the mail", 1 > message body... this is the text of the mail message... CTRL-Z ..wait.. OK Message has been sent.</pre> |
| Note | <p>The only difference between this command and the AT#SEMAIL is that this command does not interact with the GPRS context status, leaving it ON or OFF according to the #EMAILACT setting, therefore, when the connection made with AT#EMAILD is closed, the context status is maintained.</p> |

2.9.5.8 #ESAV – Email Parameters Save Command

| #ESAV – Email Parameters Save Command | |
|--|--|
| AT#ESAV | Execution command saves the actual Parameters of the Email sending commands in the NVM of the device. The values stored are: <ul style="list-style-type: none"> - Email User Name - Email Password - Email Sender Address - Email SMTP server |
| Example | AT#ESAV OK ...email parameters have been saved in NVM |
| Note | If some parameters have not been previously specified then a default value will be taken. |

2.9.5.9 #ERST – Email Parameters Reset Command

| #ERST – Email Parameters Reset Command | |
|---|--|
| AT#ERST | Execution command resets the actual Parameters of the Email sending commands in the NVM of the device to the default ones. The values reset are: <ul style="list-style-type: none"> - Email User Name (none) - Email Password (none) - Email Sender Address (none) - Email SMTP server (none) |
| Example | AT#ERST OK ...email parameters have been reset |

2.9.6 Easy Scan® Extension AT commands

2.9.6.1 #CSURV - Network Survey of the complete 900/1800/1900 Network

| #CSURV – network survey of the complete GSM900/1800/1900 Network | |
|--|---|
| <p>AT#CSURV [=<s>,<e>]</p> <p>AT*CSURV [=<s>,<e>] (both syntax are possible)</p> | <p>Execution command allows to perform a quick survey through channels belonging to the band selected by last AT#BND command issue, starting from channel <s> to channel <e>. If parameters are omitted, a full band scan is performed.</p> <p>Parameters: <s> - starting channel <e> - ending channel</p> <p>After issuing the command the following information for every received BCCH is available in the format:</p> <p>(For BCCH-Carrier) arfcn: <value> bsic: <value> rxLev: <value> ber: <value> mcc: <value> mnc: <value> lac: <value> cellId: <value> cellStatus: <value> numArfcn: <value> arfcn: <value1>...<value64> numChannels: <value> array: <value1>...<value32></p> <p>(For non BCCH-Carrier) arfcn: <value> rxLev: <value></p> <p>where: arfcn = C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) bsic = base station identification code rxLev = received level (in dBm) ber = bit error rate (in %) mcc = mobile country code mnc = mobile network code lac = localization area code cellId = cell identifier cellStatus = cell Status</p> <p>Cell Allocation NumArfcn = number of valid channels arfcn = arfcn-list</p> <p>BCCH Allocation NumChannels = number of valid channels array = arfcn-list</p> <p>The parameter CELLSTATUS indicates the following statuses: - CELL_SUITABLE indicates the C0 is a suitable cell. - CELL_LOW_PRIORITY indicates the cell is low priority based on the system information received. - CELL_FORBIDDEN indicates the cell is forbidden. - CELL_BARRED indicates the cell is barred based on the system</p> |

| #CSURV – network survey of the complete GSM900/1800/1900 Network | |
|--|--|
| | <p>Information received.</p> <ul style="list-style-type: none"> - CELL_LOW_LEVEL indicates the cell RXLEV is low. - CELL_OTHER indicates none of the above e.g. exclusion timer running, no BCCH available...etc. <p>For every non BCCH the following information is available: arfcn = RF channel rxLev = received level (in dBm)</p> |
| Example | <pre>AT#CSURV Network survey started.. arfcn: 48 bsic: 24 rxLev: -52 ber: 0.00 mcc: 610 mnc: 1 lac: 33281 cellId: 3648 cellStatus: CELL_SUITABLE numArfcn: 2 arfcn: 30 48 numChannels: 5 array: 14 19 22 48 82 arfcn: 14 rxLev: 8 Network survey ended OK</pre> |
| Note | The command is executed within max. 2 minute. |

2.9.6.2 #CSURVC - Network Survey in numeric format

| #CSURVC – network survey in numeric format | |
|---|---|
| <p>AT#CSURVC [=<s>,<e>]</p> <p>AT*CSURVC [=<s>,<e>]</p> <p>(both syntax are possible)</p> | <p>Execution command allows to perform a quick survey through channels belonging to the band selected by last AT#BND command issue, starting from channel <s> to channel <e>. If parameters are omitted, a full band scan is performed. The information is given in numeric format.</p> <p>(For BCCH-Carrier) <arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>,<cellStatus>,<numArfcn>,<arfcn1>...<arfcn64>,<numChannels>,<array1>...<array32></p> <p>For non BCCH-Carrier: <arfcn>,<level></p> <p>The numeric format of the parameter CELLSTATUS is the following: 0 - CELL_SUITABLE 1 - CELL_LOW_PRIORITY 2 - CELL_FORBIDDEN 3 - CELL_BARRED 4 - CELL_LOW_LEVEL 5 - CELL_OTHER</p> |
| <p>Example</p> | <pre>AT#CSURVC Network survey started... 48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82 14,8 Network survey ended OK</pre> |
| <p>Note</p> | <p>The command is executed within max. 2 minute.</p> |

2.9.6.3 #CSURVU - Network Survey of user defined 900/1800/1900 channels

| #CSURVU – network survey of user defined GSM900/1800/1900 channels | |
|--|---|
| AT#CSURVU =<ch1>[,<ch2>[,... [<ch10>]]] | Execution command allows performing a quick survey of user defined channels. It scans the given channels. The result format is like the full band scan (AT*CSURV). Parameter: <chN> - channel number (arfcn) The range of available arfcns depends both on the product and on the band selection (through AT#BND). |
| AT*CSURVU =<ch1>[,<ch2>[,... [<ch10>]]] (both syntax are possible) | Note: The <chN> must be in a increasing order. |
| Example | <pre>AT#CSURVU=59,110 Network survey started... arfcn: 59 bsic: 16 rxLev: -76 ber: 0.00 mcc: 546 mnc: 1 lac: 54717 cellId: 21093 cellStatus: CELL_SUITABLE numArfcn 2 arfcn: 36 59 arfcn: 110 rxLev: -107 Network survey ended OK</pre> |
| Note | The command is executed within max. 2 minute. |

2.9.6.4 #CSURVUC - Network Survey in numeric format

| #CSURVUC – network survey of user defined channels in numeric format | |
|---|---|
| AT#CSURVUC =<ch1>[,<ch2>[,... [<ch10>]]] | Execution command allows performing a quick survey of user defined channels. It scans the given channels. The result is given in numeric format. Parameter: <chN> - channel number (arfcn) The range of available arfcns depends both on the product and on the band selection (through AT#BND). |
| AT*CSURVUC =<ch1>[,<ch2>[,... [<ch10>]]] (both syntax are possible) | Note: The <chN> must be in a increasing order. |
| Example | <pre>AT#CSURVUC = 59,110 Network survey started... 59,16,-76,0.00,546,1,54717,21093,0,2,36 59 110,-107 Network survey ended OK</pre> |
| Note | The command is executed within max. 2 minute. |

2.9.6.5 #CSURVF - Network Survey Format

| #CSURVF – network survey format | |
|--|--|
| AT#CSURVF [=<format>] | <p>Set command controls the format of the numbers output by all the Easy Scan® commands depending on the value of the parameter format</p> <p>Parameter: <format> - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command</p> |
| AT#CSURVF? | <p>Read command reports the current setting of the command, in the format: #CSURVF: <format></p> |
| AT#CSURVF=? | <p>Test command reports the supported range of values for the parameter <format></p> |

2.9.7 Jammed Detect & Report AT commands

2.9.7.1 #JDR - Jammed Detect & Report

| #JDR - Jammed Detect & Report | |
|--|---|
| AT#JDR[=<mode> [,<MNPL>, <DCMN>]] | <p>Set command allows controlling the Jammed Detect & Report feature. The MODULE can Detect if a communication Jammer is active in its range and give indication to the user of this condition either on the serial line with an unsolicited code or on a dedicated GPIO by rising it.</p> <p>The MODULE can also report to the network the Jammed status condition, even if normal communications are inhibited by the Jammer, by using a unique message.</p> <p>Parameter:</p> <p><mode> - behaviour mode of the Jammed Detect & Report</p> <ul style="list-style-type: none"> 0 - Jammed Detect & Report DISABLED (Default) 1 - the Jammed Detect is active and the Jammed condition is reported on pin GPIO2/JDR <ul style="list-style-type: none"> GPIO2/JDR LOW - Normal Operating Condition GPIO2/JDR HIGH - Jammed Condition. 2 - the Jammed Detect is active and the Jammed condition is reported with a single unsolicited code on serial line whose format is: <ul style="list-style-type: none"> #JDR: JAMMED - Jammed condition detected #JDR: OPERATIVE - Normal Operating condition restored. <p>Note: the #JDR: OPERATIVE code will show only after a jammed condition has occurred.</p> 3 - the MODULE will make both the actions as for mode=1 and mode=2. 4 - the Jammed Detect is active and the Jammed condition is reported with an unsolicited code every 3s on serial line, whose format is: <ul style="list-style-type: none"> #JDR: JAMMED - Jammed condition detected #JDR: OPERATIVE - Normal Operating condition restored. <p>Note: the #JDR: OPERATIVE code will show only once and after a jammed condition has occurred.</p> 5 - the MODULE will make both the actions as for mode=1 and mode=4. <p><MNPL> - Maximum Noise power Level optional parameter 0 -127</p> <p><DCMN> - Disturbed Channel minimum number optional parameter 0 – 254</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same of Read command.</p> |
| AT#JDR? | <p>Read command reports the current settings of the command, in the format:</p> |

| #JDR - Jammed Detect & Report | |
|-------------------------------|--|
| | #JDR: <mode>,<MNPL>,<DCMN> |
| AT#JDR=? | Test command reports the supported range of values for the parameters <mode>,<MNPL>, <DCMN> |
| Example | <pre> AT#JDR=2 OK ... jammer enters in the range... #JDR: JAMMED ... jammer exits the range... #JDR: OPERATIVE </pre> |
| Note | The parameters MNPL and DCMN are used for fine tuning the detection algorithms, their value is set to appropriate values in factory and there should be never the need for changing these parameters. If the device is installed in a particular environment and the default values are not satisfactory these two parameters permit to adapt the detection to all conditions. |

2.9.8 Easy Script® Extension – Python³ interpreter, AT commands

2.9.8.1 #WSCRIPT - Write script command

| #WSCRIPT - Write script command | |
|--|--|
| AT#WSCRIPT = <script_name>,<size> [,<hidden>] | <p>Execution command inserts a script text and save it with the name <script-name> in the Non Volatile Memory of the GM862-PYTHON. The script text should be sent using Raw Ascii file transfer. It is important to set properly the port settings. In particular: Baud rate: 115200 bps Flow control: hardware.</p> <p>Parameter: < script-name > - file name (max 16 chars - case sensitive) enclosed in double quotes. <size> - file size (number of bytes) <hidden> - file hidden attribute 0 - file content is readable with #RSCRIPT -default - 1 - file content is hidden, #RSCRIPT command will report empty file.</p> <p>The device responds to the command with the prompt '>' and awaits for the script file text for <size> bytes. The operations completes when all the bytes are received. If script storing is successfully sent, then the response is OK. If script writing fails for some reason, an error code is reported</p> <p>Note: The script name should be passed between quotes and ALL Executable Scripts files MUST have .py extension - Script names are Case sensitive.</p> <p>Note: When sending the script verifies that the line terminator is <cr><lf> and that your terminal program does not change it.</p> <p>Note: with the hidden attribute it is possible to protect your script from being viewed and copied, only the file name can be viewed, its content is hidden even if the file is still being run correctly. It's your care to maintain knowledge on what the script file contains.</p> <p>Note: This command can also be used to write any text file in the GM862-PYTHON memory (not script files), for example application data or settings files with a different extension than .py.</p> |
| Example | <pre>AT#WSCRIPT="First.py ",54,0 ➤ (here receive the prompt) import MDM MDM.send('AT\r',10)</pre> |

³ PYTHON is a registered trademark of the Python Software Foundation.

| | |
|--|--|
| #WSCRIPT - Write script command | |
| | <pre>Ans=MDM.receive(20) OK Script has been stored.</pre> |

2.9.8.2 #ESCRIP - Select Active script command

| | |
|---|---|
| #ESCRIP - Select Active script command | |
| AT#ESCRIP [=<script_name>] | <p>Set command selects the name of the script that will be executed by the Easy Script® interpreter at the start-up. The script will be executed at start-up only if the DTR line is found LOW during initial start-up (that is: COM is not open on a PC), otherwise the Easy Script® interpreter will not execute and the GM862-PYTHON will behave normally answering only to AT commands on the serial port.</p> <p>Parameter: < script-name > - file name (max 16 chars - case sensitive) enclosed in double quotes.</p> <p>Note: The script name should be passed between quotes and ALL Scripts files MUST have .py extension - Script names are Case sensitive.</p> <p>Note: The <script_name> must match with a <script_name> written with the AT#WSCRIPT in order to have it run. The command does not check whether the script <script_name> does exist in the NVM of the GM862-PYTHON. If the file <script_name> is not present at the start-up then the Script Interpreter WILL NOT EXECUTE.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p> |
| AT#ESCRIP? | Read command reports the current value of the parameter <script_name> |
| Example | <pre>AT#ESCRIP="First.py " OK Script First.py will be executed at the next start-ups if DTR is found LOW.</pre> |

2.9.8.3 #RSCRIPT - Read script command

| #RSCRIPT - Read script command | |
|---|---|
| AT#RSCRIPT = <script_name> | <p>Execution command reports the script file <script_name> content.</p> <p>Parameter: <script-name> - file name (max 16 chars - case sensitive) enclosed in double quotes.</p> |
| Example | <pre>AT#RSCRIPT="First.py " import MDM MDM.send('AT\r',10) Ans=MDM.receive(20) OK</pre> |
| Note | <p>The script name should be passed between quotes and ALL Executable Scripts files MUST have .py extension - Script names are Case sensitive.</p> <p>If the file <script_name> is not present an error code is reported.</p> <p>If the file <script_name> was saved with the hidden attribute, then an empty file is reported with the OK result code.</p> |

2.9.8.4 #LSCRIPT - List script names command

| #LSCRIPT - List script names command | |
|---|--|
| AT#LSCRIPT | <p>Execution command reports the list of script files names currently saved into the NVM and the available free NVM memory in the format:</p> <pre>#LSCRIPT: <script_name1>,<size> #LSCRIPT: <script_name2>,<size> ... #LSCRIPT: <script_nameN>.,<size> free bytes: <free_NVM_size></pre> <p>Parameters: < script-name > - file name (max 16 chars - case sensitive) < size > - size of script in bytes < free_NVM_size > - size of available NVM memory in bytes</p> |
| Example | <pre>AT#LSCRIPT= #LSCRIPT: First.py,51 #LSCRIPT: Second.py,178 #LSCRIPT: Third.py,95 free bytes: 20000 OK</pre> |

2.9.8.5 #DSCRIPT - Delete script command

| #DSCRIPT - Delete script command | |
|--|---|
| AT#DSCRIPT= <script_name> | <p>Execution command deletes the script file with the name <script_name> from NVM memory.</p> <p>Parameter: <script_name> - (max 16 chars - case sensitive) enclosed in double quotes.</p> <p>Note: Script names are Case sensitive.</p> |
| Example | <pre>AT#DSCRIPT="Third.py" OK</pre> |
| Note | If the file <script_name> is not present an error code is reported. |

2.9.8.6 #REBOOT - Reboot command

| #REBOOT - Reboot command | |
|---------------------------------|--|
| AT#REBOOT | Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running. |
| Example | AT#REBOOT ... Module Reboots ... |
| Note | This command does not return result codes. |

2.9.9 GPS Application AT commands

2.9.9.1 \$GPRSD – GPS Device Type Set

| \$GPRSD – GPS Device Type Set | |
|---|---|
| AT\$GPRSD [=<device type>] | <p>Set command defines which GPS device is connected to the module. It dedicates the Serial port #1 of the module (TRACE) to receive the GPS strings from the GPS module.</p> <p>Parameter: <device type> 0 - none (Serial port available for standard use - DEFAULT) 1 - Trizium GPS (GPS 107-04) 2 - Telit module (SIRF Binary based) 3 - Standard (any GPS module with NMEA standard)</p> <p>Note: This setting will be available at next power on only if AT\$GPSSAV is issued.</p> <p>Note: If parameters are omitted then the behaviour of Set command is the same as Read command</p> |
| AT\$GPRSD? | Read command will return the current status of <device type>. |
| AT\$GPRSD=? | Test command provides the range of available values for parameter <device type> |
| Example | AT\$GPRSD=0 OK |

2.9.9.2 \$GPSSW – GPS Software version

| \$GPSSW – GPS Software version | |
|---------------------------------------|---|
| AT\$GPSSW | <p>Execution command provides GPS Module software version in the format: \$GPSSW: <sw version></p> <p>Where <sw version> depends on the GPS chipset used</p> |
| Example | AT\$GPSSW \$GPSSW: Gps Version 4.20.5 Release ARM (17:46:54 Jun 01 2005) OK |

2.9.9.3 \$GPSDATA – GPS Data acquisition through serial port

| \$GPSDATA – GPS Data acquisition through serial port | |
|---|---|
| AT\$GPSDATA [=<mode>] | <p>Set command enables/disables GPS NMEA data acquisition through the GSM module serial port</p> <p>Parameter: <mode> 0 – Disable serial port. 1 - Enable GSM module trace port to receive GPS data.</p> <p>Note: This setting will be available at next power on only if AT\$GPSSAV is issued.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT\$GPSDATA? | <p>Read command returns the current status of <mode> in the format:</p> <p>\$GPSDATA:<mode></p> <p><mode> 0 - Serial port disabled 1 - Serial port enabled to receive GPS data</p> |
| AT\$GPSDATA=? | <p>Test command returns the available range of values for parameter <mode></p> |
| Example | <pre>AT\$GPSSW \$GPSSW: Gps Version 4.20.5 Release ARM (17:46:54 Jun 01 2005) OK</pre> |

2.9.9.4 \$GPSDATAS – GSM module serial port speed

| \$GPSDATAS – GSM module serial port speed | |
|--|--|
| AT\$GPSDATAS [=<speed>] | <p>Set command sets the speed of the serial port of GSM module to receive the NMEA data from the GPS receiver.</p> <p>Parameter: <speed> 4800 9600 (default) 19200 38400 57600 115200</p> <p>Note: This setting will be available at next power on only if AT\$GPSSAV is issued.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p> |
| AT\$GPSDATAS? | <p>Read command returns the current value of <speed> in the format:</p> <p>\$GPSDATAS:<speed></p> |
| AT\$GPSDATAS=? | <p>Test command returns the available range of values for parameter <mode></p> |
| Example | <pre>AT\$GPSDATAS=9600 OK AT\$GPSDATAS? \$GPSDATAS:115200 AT\$GPSDATAS=? \$GPSDATAS:(4800-115200)</pre> |

2.9.9.5 \$GPSNMUN – Unsolicited NMEA data configuration

| \$GPSNMUN – GPS Unsolicited NMEA data configuration | |
|---|--|
| AT\$GPSNMUN [=<enable> [,<gga>,<gll>, <gsa>,<gsv>, <rmc>,<vtg>]] | <p>Set command activates/deactivates an unsolicited streaming of GPS data (in NMEA format) through the standard GSM serial port (AT) and defines which NMEA sentences will be available. The unsolicited stream has the following format:</p> <p>\$GPSNMUN: <NMEA SENTENCE></p> <p>Parameters:</p> <p><enable> 0 – deactivates NMEA data stream 1 – activates NMEA data stream</p> <p><gga> - Global Positioning System Fix Data 0 – disable 1 – enable</p> <p><gll> - Geographical Position – Latitude/Longitude 0 – disable 1 – enable</p> <p><gsa> - GPS DOP and Active Satellites 0 – disable 1 – enable</p> <p><gsv> - GPS Satellites in View 0 – disable 1 – enable</p> <p><rmc> - recommended Minimum Specific GPS Data 0 – disable 1 – enable</p> <p><vtg> - Course Over Ground and Ground Speed 0 – disable 1 – enable</p> <p>Note: This setting will be available at next power on only if AT\$GPSSAV is issued.</p> <p>Note: If command is issued with parameter <enable> only, it disables/enables NMEA stream following last setting rules.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command</p> |
| AT\$GPSNMUN? | <p>Read command returns the current status of parameters in the format:</p> |

| \$GPSNMUN – GPS Unsolicited NMEA data configuration | |
|---|--|
| | \$GPSNMUN:<enable>,<gga>,<gll>,<gsa>,<gsv>,<rmc>,<vtg> |
| AT\$GPSNMUN=? | Test command returns the available range of values for parameters <enable>,<gga>,<gll>,<gsa>,<gsv>,<rmc>,<vtg> |
| Example | <p>AT\$GPSNMUN=1,0,0,1,0,0,0 OK <i>These sets the GSA as available sentence in the unsolicited message</i></p> <p>AT\$GPSNMUN=0 OK <i>Turns-off the unsolicited mode</i></p> <p>AT\$GPSNMUN? \$GPSNMUN: 1,0,0,1,0,0,0 OK <i>Gives the current frame selected (GSA)</i></p> <p>The unsolicited message will be:</p> <p>\$GPSNMUN: \$GPGSA,A,3,23,20,24,07,13,04,02,,,,,,,,2.4,1.6,1.8*3C</p> |
| Reference | NMEA 01803 specifications |
| Note | The available NMEA sentences depend on GPS receiver used. |

2.9.9.6 \$GPSACP – GPS Actual position information

\$GPSACP – GPS Actual position information

| | |
|-------------------|---|
| AT\$GPSACP | <p>Execution command returns information about the last GPS position in the format:</p> <p>\$GPSACP:<UTC>,<latitude>,<longitude>,<hdop>,<altitude>,<fix>,<cog>,<spkm>,<spkn>,<date>,<nsat></p> <p><UTC> - UTC time (hhmmss) referred to GGA sentence</p> <p><latitude>: ddmm.mmmm N/S (referred to GGA sentence) Values: dd (degrees) 00 to 90 mm.mmmm (minutes) 00,0000 to 59.9999 N/S: North / South</p> <p><longitude>: dddmm.mmmm E/W (referred to GGA sentence) Values: ddd (degrees) 00 to 180 mm.mmmm (minutes) 00,0000 to 59.9999 E/W: East / West</p> <p><hdop>: x.x - Horizontal Dilution of Precision (referred to GGA sentence)</p> <p><altitude>: xxxx.x Altitude – mean-sea-level (geoid) in meters (referred to GGA sentence)</p> <p><fix>: 1 Invalid Fix 2 2D fix 3 3D fix (referred to GSA sentence)</p> <p><cog>: ddd.mm - Course over Ground (degrees, True) (referred to VTG sentence) Values: ddd: 000 to 360 degrees mm 00 to 59 minutes</p> <p><spkm>: xxxx.x Speed over ground (Km/hr) (referred to VTG sentence)</p> <p><spkn>: xxxx.x- Speed over ground (knots) (referred to VTG sentence)</p> <p><date>: ddmmyy Date of Fix (referred to RMC sentence) Values: dd (day) 01 to 31 mm (month) 01 to 12</p> |
|-------------------|---|

| \$GPSACP – GPS Actual position information | |
|---|---|
| | yy (year) 00 to 99 (2000 to 2099) <nsat>: nn - Total number of satellites in view (referred to GSV sentence) |
| Example | AT\$GPSACP \$GPSACP:080220,4542.82691N,01344.26820E,259.07,3,2.1,0.1,0.0,0.0,270705,09 OK |

2.9.9.7 \$GPSSAV – Save GPS parameters

| \$GPSSAV – Save GPS parameters | |
|---------------------------------------|---|
| AT\$GPSSAV | Execution command saves the current configuration in the non volatile memory of the GSM module. This command is necessary to keep current settings at next power on. |
| Note | In order to have the current settings available at the next power on, the command AT\$GPSSAV must be issued and the module must be shut down through AT#SHDN command.. |

2.9.9.8 \$GPRST – Restore default GPS parameters

| \$GPRST – Restore default GPS parameters | |
|---|--|
| AT\$GPRST | Execution command restores GPS parameters to “Factory Default” configuration and stores them in the non volatile memory of GSM module. |

3 Document Change Log

| Revision | Date | Changes |
|----------|------|---------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |