Command List

LLC_I_GenPro14_0AT313_V100- Q24CL OAT313

Embedded application with autonomous management of GPIO features

GenPro 14e

Reference : EG_GenPro14e_988_CL_004_UK

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Document history

Revision	Modifications	Author	Date
000	Creation	PBR	31/01/07
001	Corrected missing "N" in the command +EGPHN Added version OAT3.13	PBR	16/02/07
002	Deleted TCP information and corrected paragraph DOWNLOAD Added information remove SIM card	PBR	15/03/07
004	Changed reference OS to OS 657	BBO	29/03/07

The main modifications in this document compared to its previous version, are easily identifiable on a monitor by means of the blue text.

REFERENCE DOCUMENTS:

[R1] – AT Command Interface Guide For 6.57 RELEASE (ref: WM_ASW_OAT_UGD_xxx)

[R2] – Open AT ADL User Guide for Open AT 3.13

CONTENTS

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1 DESCRIPTION

1.1 Introduction

The GenLoc 14e has been designed around the Wavecom WISMO module incorporating GSM communication functions.

The basic system includes GSM functions however these are not automatic.
The application developed with the tools made available by Wavecom is downloaded directly into the unit. Thus this allows the conception of a completely autonomous unit requiring no external intelligence.

NOTE:
The embedded application has been developed using the Wavecom Open AT® ADL (Advanced Developer Layer) software suite. The result of this is that at power-on, various "WIND" messages are produced by the operating system which the application cannot filter. The application is then started.

1.2 Functions

1.2.1 Characteristics

The standard configuration commands in our products and used in this application begin with the string **"AT+EG".**

Certain commands have been created but have no use here or are even redundant.

This software version only runs on units having the OS "**657***x***09gm.Q24CL***xxx*" installed
Use the command ATI3 to determine the current OS version.

1.2.2 Use

This unit offers the possibility to remotely manage the output via SMS data.
To command the output it is only required to enter the command AT+WIOW=0,x where x is the desired level (0 or 1).

2 APPLICATION COMMANDS

2.1 General principles

By means of the basic Hayes commands included in the GenLoc 14e, it is possible to manage all the GPRS functions. However, this requires the use of an external application.
All parameters are automatically saved to internal flash memory.

2.1.1 AT+EGFM – Feature Management

Description:

This command will program functions specific to ERCO & GENER added to the basic product.
At the moment two specific features exist: management by SMS and management by GSM DATA mode.

Syntax:

AT+ EGFM =<n>,<feature>,<pwd>

Examples:

Command	Possible responses	Notes
AT+EGFM=?	+EGFM=2 or (0-1),"FEATURE","PWD" OK	*Display syntax.*
AT+EGFM=1,"DATA_CONTROL", "4443"	 OK	*Program the feature.*
AT+EGFM=2	+EGFM: "SMS_CONTROL",0 +EGFM: "DATA_CONTROL",1 OK	*Display the active and non active features.*

Defined values:

<n> "1" : activate the feature
"0" : deactivate the feature
"2" : display current configuration

<feature> SMS_CONTROL : for remote control via SMS
DATA_CONTROL : for remote control DATA mode

<pwd> 5343 : password for management via SMS
4443 : password for management via DATA

This command must be followed by the reset command AT+CFUN for the changes to be made.

2.1.2 AT+EGMGS – Direct emission of a mini message (SMS)

Description:

This command is in addition the existing basic command and allows the composition and emission of an SMS in a single command line. This avoids having to manage the relatively more complex basic command AT+CMGS.

Syntax:

AT+EGMGS="+3301234567","This is my message"

Examples:

Command	Possible responses	Notes
AT+EGMGS="0612345678","This is my message"	OK	*The SMS has been sent*
AT+EGMGS="0612345678","This is my message"	ERROR	*The SMS has not been sent*

The only information returned by this command (OK or ERROR) indicates the correct emission of the SMS. If the network is absent the ERROR message is immediately returned.

2.1.3 AT+EGPHN – Authorized telephone numbers

Description:

This command programs the destination telephone numbers used by the unit. This is a telephone list independent of that on the SIM card.

This command is only accessible when the features "SMS_CONTROL" or "DATA_CONTROL" are active.

Syntax:

AT+EGPHN=<x>[,<nnn>,<y>] (PHoNe)

Examples:

Command	Possible responses	Notes
AT+EGPHN=?	+EGPHN: (1-255),20,(0-255) OK	*Display syntax*
AT+ EGPHN=x,,y	OK	*Modify the parameters only of the function for an existing telephone number*
AT+ EGPHN=1, "0612345678",8	OK	*Program a telephone number authorized to connect in DATA mode*
AT+ EGPHN=1, "0687654321",128	OK	*Program a telephone number authorized to send a command SMS without using the password*
AT+ EGPHN?	+EGPHN: 1,"0612345678",5 OK	*Display the programmed telephone numbers*
AT+ EGPHN=1	OK	*Erase the telephone number stored in position 1*

Defined values:

<x> Index (1 to 255).

<nnn> Telephone number (20 digits max.). The format of the number must be "+yyxxxxxxx". This field is not used for a GPRS connexion but must contain at least one digit.

<y> Bit map specifying the function used by this telephone number:

- 1 (bit 0) Reserved.
- 2 (bit 1) Reserved
- 4 (bit 2) Reserved.
- 8 (bit 3) Destination number. Emission in DATA mode.
- 16 (bit 4) Reserved.
- 32 (bit 5) Reserved.
- 64 (bit 6) Reserved.
- 128 (bit 7) Number authorised for remote management via SMS.

2.1.4 AT+EGINP – Configuration des entrées

Description:

This command will configure the use of the opto-coupled inputs.
This command is only accessible when the features "SMS_CONTROL" or "DATA_CONTROL" are active.

Syntax:

AT+EGINP=<n>,<o>,<t>,<x>,<y> (INPut set-up)

Examples:

Command	Possible responses	Notes
AT+EGINP=?	+EGINP: (1-3),(0-1),(0-65535),("O","C"),("D","S")	*Display syntax*

	+EGINP: (1-3),("O"-"C"),"Message" OK	
AT+EGINP?	+EGINP: 1,0,00000,"O","D" +EGINP: 1,"C","ENTREE 1 ON" +EGINP: 1,"O","ENTREE 1 OFF" +EGINP: 2,0,00000,"O","D" +EGINP: 2,"C","ENTREE 2 ON" +EGINP: 2,"O","ENTREE 2 OFF" +EGINP: 3,0,00000,"O","D" +EGINP: 3,"C","ENTREE 3 ON" +EGINP: 3,"O","ENTREE 3 OFF" OK	*Display the current configuration*

Defined values:

<n> Input number, 1 to 3.

<o> option

If <o> is "0" or "1"
0 = input inactive,
1 = input active

<t> Time of presence on the input before action. From 0 (inactive) to 65535 (time base 100 ms).

<x> Idle state of the input. "O" for Open and "C" for Closed.

<y> Type of state change on the input:
"S" for Single, the change of state from idle to active initiates the action.
"D" for Double, the change of state from idle to active and then to idle initiates the action.

If <o> is "O" or "C"
"O", the next parameter field indicates the message which will be sent when the input is opened.
"C", the next parameter field indicates the message which will be sent when the input is closed.

<t> Message to be sent by the SMS. Maximum length 160 characters.

Notes:

Default configuration:

+EGINP: 1,0,00000,"O","D"
+EGINP: 1,"C","ENTREE 1 ON"
+EGINP: 1,"O","ENTREE 1 OFF"
+EGINP: 2,0,00000,"O","D"
+EGINP: 2,"C","ENTREE 2 ON"
+EGINP: 2,"O","ENTREE 2 OFF"
+EGINP: 3,0,00000,"O","D"
+EGINP: 3,"C","ENTREE 3 ON"
+EGINP: 3,"O","ENTREE 3 OFF"

2.1.5 AT+EGIDT – modem identifier

Description:

This command programs an identifier which identifies the unit when sending SMS information.
This command is only accessible when the features "SMS_CONTROL is active.

Syntax:

AT+ EGIDT =<IdenTifier>

Examples:

Command	Possible responses	Notes
AT+EGIDT=?	+EGIDT: (40) OK	*Display syntax.*
AT+EGIDT="354475000000001"	OK	*Program the identifier.*
AT+EGIDT?	+EGIDT: "354475000000001" OK	*Display current configuration*

Defined values:

<IdenTifier> Value of the identifier entered as an ASCII character string, example: “012345678912345”.

Notes:

Maximum length of the identifier is 40 characters.
Default value: empty string.

2.1.6 AT+EGPWS – SMS access password

Description:

This command manages the password authorising remote access to the various functions in the case where the telephone associated with a command is different to the programmed number (reception SMS).

Syntax:

AT+EGPWS=<OLD>,[<NEW>]

Examples:

Command	Possible responses	Notes
AT+EGPWS=?	AT+EGPWS="OLD","NEW" Program password for SMS acces (8 chars max) OK	*Display syntax. Maximum length of the password*
AT+EGPWS?	+EGPWS: "0000" OK	*Display current configuration*
AT+EGPWS=”0000”,”1234”	OK	*Modify password. Immediately saved to flash.*

Defined values:

<OLD> Current password entered as an ASCII string, example: “0000”.

<NEW> New password

Notes:

Maximum length of the password is 8 characters. **Attention: respect the case of the characters**.
Default password: 0000.

2.1.7 AT+EGPWD – GSM DATA access password

Description:

This command manages the password authorising remote access to the various functions via a connexion in DATA mode.

Syntax:

AT+EGPWD=<OLD>,[<NEW>,<OPT>]

Examples:

Command	Possible responses	Notes
AT+EGPWD=?	AT+EGPWD="OLD","NEW" Program password for SMS acces (8 chars max) OK	*Display syntax. Maximum length of the password*
AT+EGPWD?	+EGPWS: "0000" OK	*Display current configuration*
AT+EGPWD=”0000”,”1234”	OK	*Modify password. Immediately saved to flash.*
AT+EGPWD=”0000”,,”R”	OK	*Erase completely the password.*

Defined values:

<OLD> Current password entered as an ASCII string, example: “0000”.

<NEW> New password

<OPT> If "R", erases the password and its request at the start of a remote control access.

Notes:

Maximum length of the password is 8 characters. **Attention: respect the case of the characters**. Default password: 0000.

2.1.8 ATS201 – GSM DATA escape character

Description:

This command configures the GSM DATA mode escape character authorizing access to the various functions via remote control.

Syntax:

ATS201=x

Examples:

Command	Possible responses	Notes
ATS201?	035 OK	*Display current configuration*
ATS201=42	OK	*Modify character. Immediately saved to flash.*

Defined values:

<x> 0 to 255. Default value is 35 ("#").

Notes:

If 0, then after an automatic answer, the unit immediately switches to remote mode.
If the password is also empty, it is possible to immediately be in control of the unit. This is indicated by the displayed prompt character ">".

2.1.9 ATS37 – Inactivity timeout

Description:

When the value of this register is not zero, the detection of inactivity whilst in communication is active. This allows the communication to be automatically closed when there is a period of prolonged inactivity between the two sites.

Syntax:

ATS37=x

Examples:

Command	Possible responses	Notes
ATS37?	000 OK	*Display current configuration*
ATS37=2	OK	*2 minutes of inactivity before stopping the communication. Immediately saved to flash.*

Defined values:

<x> 0 to 255. Default value is 0.

Notes: Precision is +/- 1 second.

2.2 Remote control

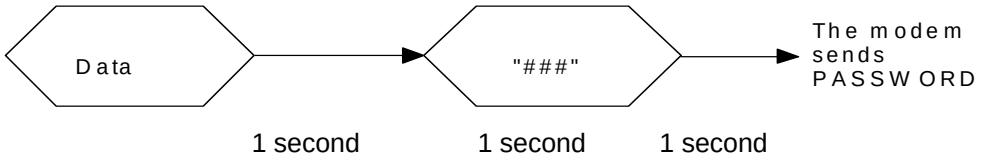
Principal:

When the connexion has been established, the remote user sends an escape sequence putting the GSM modem in command mode when the modem is connected (on line).

So as to be able correctly interpret this sequence the modem requires a guard silence before and after the escape sequence. By default this guard silence is 1 second long.

The modem will then go to command mode and send the message "PASSWORD".
The user must enter the password. If correct, the modem sends the prompt character ">". If the password is incorrect the modem hangs up.

The liaison between the two modems is not interrupted when changing to command mode, only the data transmission.



The PASSWORD requested is that programmed with the command AT+EGPWD (Password DATA).

It is then possible to verify the general parameters of the remote modem and modify them as required.

2.3 PIN code

2.3.1 AT+CPIN – Enter a PIN code

The PIN code is essential to make or receive a GSM call. This code is held on the SIM card and can be modified by the user.

Warning:	The user has 2 chances to correctly enter the PIN code. After 3 incorrect tries, only the **PUK** code supplied by the operator will allow the PIN code to be changed.

Example (code PIN = 1234):

1) Enter the PIN code:
   AT+CPIN=1234

2) Verify the PIN code:
   AT+CPIN?

   The modem replies:
   +CPIN: READY (the PIN code is good)
   +CPIN: SIM PIN (the PIN code is bad or not yet entered)
   +CPIN: SIM PUK (the PUK code is required)

2.3.2 AT+CLCK – Lock the PIN code

This command allows the PIN code on the SIM card to be locked so as to avoid systematically entering the PIN code at each power up.

Warning:	The card will be locked and can then be used on another GSM terminal.

Example (code PIN = 1234):

1. Enter the PIN code:
   AT+CPIN=1234

2. Verify the PIN code:
   AT+CPIN?

   The modem replies:
   +CPIN: READY (the PIN code is good)

3) Lock the PIN code ('SC' must be entered in uppercase letters):
   AT+CLCK="SC",0,1234 (the digit '0' indicates locked)

   The modem replies:
   OK (the PIN code is correctly locked)
   or
   ERROR (wait 2 minutes for the SIM card to be re-initialised and then re-enter the command)

At the next power up the modem will accept all outgoing or incoming call. To reactivate the request for the PIN code at each power up, enter the command:

AT+CLCK="SC",1,1234

2.3.3 AT+CPWD – Modify the PIN code

Description:
The PIN code may be changed by the user on the condition that the current PIN code is known.

Syntax:
AT+CPWD=<"SC">,<old>,<new>

Example (Current PIN code = 1234, new PIN = 4321):

AT+CPWD="SC",1234,4321

Notes:
The request for the PIN code must be active. See the command **AT+CLCK="SC",1,1234**.

2.4 Remote management and configuration

It is possible to send configuration information via the TCP channel.

2.4.1 "Standard" command messages

The system will accept via this channel the same commands as sent over the serial link.

Notes:
The message **must** include the line return character (ENTER).

2.5 Miscellaneous

2.5.1 Re-initialisation

Following various diverse configurations and manipulations it is possible that the unit does perform as expected. As such it is possible to completely re-initialise the memory space with the factory default parameters. (See the command **AT+WOPEN** below.)

2.5.1.1 AT+WOPEN

Proceed as follows:

Send the command "**AT+WOPEN=0**", to stop the application.
Send the command "**AT+WOPEN=3**", to erase the parameter of the application.
Send the command "**AT+WOPEN=1**", to restart the application.

3 DOWNLOAD THE APPLICATION

3.1 Preparing the download

VERY IMPORTANT

To ensure a correct download (without stopping or blocking), please:

- **REMOVE THE SIM CARD. This will deactivate the hardware watchdog thus avoiding the possibility of the unit blocking if a reset occurs during the download.**

- Execute the following commands to re-initialise the modem:

AT+WOPEN=0	(stop the current application)
AT+WOPEN=3	(erase the parameters in the flash memory)
AT+WOPEN=4	(erase the application)
AT&F	(re-load the default factory parameters)
AT&W	(save the current configuration)
AT+CFUN=1	(reset the unit)

3.2 AT+WDWL – Download the application

1) Start HyperTerminal under Windows.
2) Activate the **Material flow control**.
3) Executer the sequence of commands above to re-initialisation the modem.
4) Enter the command **AT+WDWL** to put the modem in download mode.
5) The modem returns **+WDWL: 0** and then non interpreted control characters ('**§**' or similar) within 2 seconds. If not then enter the command **AT+CFUN=1** and go to step 3.
6) From the menu bar in HyperTerminal select "**Transfer**" then "**Send file**".
7) Select the file having the extension "**.DWL**".
8) Select the protocol "**Xmodem**".
9) Valid the selection.
10) The download will start.
11) When finished enter the command **AT+CFUN=1** to stop the display of the control characters and to reset the modem.
12) The modem returns "**OK**".
13) Enter the command **AT+WOPEN=1** to activate the **MUSE** function and the new application.
14) Verify with the command **AT+WOPEN?**. Le modem replies **+WOPEN :1** if active, or **+WOPEN :0**.if inactive.

Entering the command **AT+WOPEN=0** will deactivate the **MUSE** function and the application.

3.3 Download at 115200 b/s

- Executer the sequence of commands above in "**Preparing the download**" to re-initialisation the modem.
- At 9600 b/s enter the command **AT+IPR=115200**.
- Change the speed of Hyperterminal to 115200 b/s.
- Execute the steps 4 to 12 above. Entering the command **AT+CFUN=1** will result in the modem returning to 9600 b/s.
- Change the speed of Hyperterminal to 9600 b/s.
- Enter the command **AT+WOPEN=1** to activate the **MUSE** function and the new application.
- Verify with the command **AT+WOPEN?**. Le modem replies **+WOPEN :1** if active, or **+WOPEN :0**.if inactive.