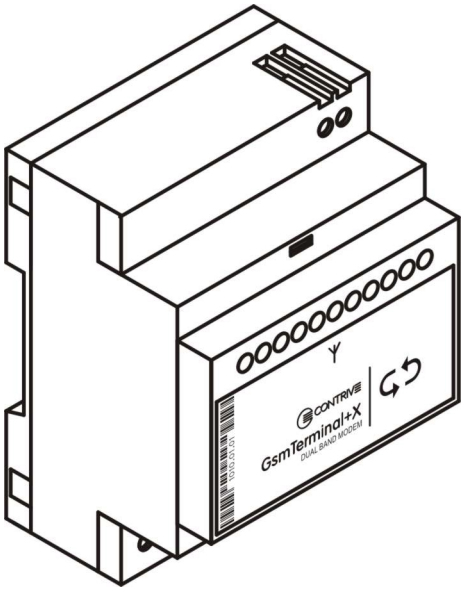
CONTRIVE



Wireless Products

GsmControl+

Advanced Manual

REVISION
005.07
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1. INTRODUCTION

This detailed guide aims at explaining the features available with Contrive **GsmControl+**.
It supposes you are a bit familiar with GSM and cellular phones.
This guide is not intended to give full details about how GSM or GPRS works.

2. SIM CARD

The SIM card receptacle is intended for 3V SIM cards [GSM 11.12 phase 2+].
The SIM card must be inserted in the cardholder to put the unit into operation.
Make sure that there is no voltage applied to GsmControl+ and follow operating instruction.

2.1 Operating without SIM PIN

The simplest way is to put your SIM card into a cellular phone and program it so it won't ask for the PIN. The SIM card is 'open' and someone could steal the SIM card, use it and read the information inside.

2.2 Enter default SIM PIN

GsmControl+ comes with a default PIN = 0000 (four zeroes).
Put your SIM card into a cellular phone and program the PIN using the given number.

2.3 Change default SIM PIN

Using com port and GsmSuite running on Microsoft® Windows® PC you can modify the default PIN on both GsmControl+ and SIM card. More information at § 13.5

2.4 WARNING

If you insert a SIM card that ask for a PIN number different from that stored into GsmControl+, the device will not operate. Turning on GsmControl+ for 3 times having mismatch condition, SIM card will lock up and you must provide the PUK (PIN Unblocking Key).

3. REMOTE CONTROL

Depending on the device type there are many possible remote control capabilities.
Outputs can be controlled from any telephone, both landline and mobile, the number of which was previously stored into the SIM card phonebook or the internal device phonebook: these are authorized users.
In order to be recognized the user must verify that the presentation of his telephone number (CLIP) is enabled. The unit will not answer to unrecognized calls.

3.1 Call control (CLIP)

Any incoming call from authorized users can activate outputs.
Depending on system settings [§ 13.1] different action can take place.

3.1.1 NONE

Selecting mode NONE the Clip feature is disabled, nothing happens on incoming calls from registered users.

3.1.2 PULSE (default)

Selecting this mode, incoming voice (and fax) call from registered user will turn on output 1 for the time set in `pulse`. A data call will do the same on output 2.

3.1.3 TOGGLE

Incoming voice calls will toggle output 1 on to off or vice-versa, non voice calls will do the same on output 2. A ringback will be issued only when an output is turned on.
If the user waits online, after the time specified in `answ`, GsmControl+ will answer, playing a low tone after output release or four high tones after output activation. No ringback will be issued in such case.

3.1.4 REVERSE

This mode involves both outputs. Any incoming call from registered users will start a sequence: output 1 will be activated for the time specified in `rev1`, after the delay set in `hold`, output 2 will be activated for the time specified in `rev2`.

3.1.5 DTMF

This option is available only on GsmControl+D that will answer to incoming call from registered users that, after a short welcome tone, can type the command code on the phone keyboard.
Following default commands can be changed to any custom one using GsmSuite.

1 OUT1 ON	2 OUT2 ON	3
4 OUT1 OFF	5 OUT2 OFF	6
7 OUT1 LATCH	8 OUT2 LATCH	9
* CONFIRM	0 STATUS SMS	# DELETE

Once all commands are issued (max 5), confirm the execution typing * (star) key.
Using # (hash) key is possible to delete everything and start again from the beginning.
Correct commands will be confirmed by four short high tones. Wrong commands will produce a long low tone.

3.2 SMS control

Any incoming SMS will be parsed to find up to 5 commands that will be recognized either uppercase, lowercase and mixed, also embedded within alien text.
Remote control commands are available to registered users and some special system commands are reserved to supervisors.
Users registered in both groups can issue SMS made by mixed remote and system commands.

3.2.1 REMOTE CONTROL COMMANDS

The following default commands, available to any registered user, can be modified to any other following specification [§ 11].

S1 **Set output 1 permanently ON**

S2 **Set output 2 permanently ON**

Optional trailer text `ddhhmm` can define the activation time
output will set to ON until specified time has been elapsed
`dd` 00 to 99 days
`hh` 00 to 23 hours
`mm` 00 to 59 minutes
If a blackout occur the output will not be set to ON at further power on.

R1 **Reset output 1 OFF**

R2 **Reset output 2 OFF**

M1 **Set output 1 ON and LATCH (set again at further power on)**

M2 **Set output 2 ON and LATCH (set again at further power on)**

Optional trailer text `ddMMyyhhmm` can be used to define the date
of output reset to OFF
`dd` day
`MM` month
`yy` year
`hh` hour
`mm` minute
If a blackout occur the output will be set again to ON until scheduled date has been reached. Output status is recovered ONLY once the synchronization of internal clock has been performed successfully.
Issuing an output reset command the output will be released and scheduled time deleted.

D **A Status SMS will be sent back**

B **A ringback will be sent back once incoming SMS has been processed**

Example: `S1000830 nonsense text D M21409061830`
turn ON output 1 for 8 hours and 30 minutes, send back a status SMS
turn ON and latch output 2 until September 14th 2006 - 6:30 PM

3.2.2 SYSTEM CONTROL COMMANDS

The following system commands are available to supervisors only.

`Stop` **Disable CLIP**
Disable free calls control feature (CLIP): incoming calls will be rejected.

`Start` **Enable CLIP**
Enable free calls control feature (CLIP): incoming calls from registered users will activate outputs following the specified sequence.

`Lista#` **Last received calls list request (closed by device)**
An SMS reporting the list of last # (1÷9) received calls, closed by device, will be sent. The full list will be sent specifying 0.
List can be splitted on several SMS.

`Listu#` **Last calls list request (closed by caller)**
An SMS reporting the list of last # (1÷9) received calls, closed by caller, will be sent. The full list will be sent specifying 0.
List can be splitted on several SMS.

`Pbook` **Phonebook request**
An Email reporting the complete phonebook will be issued to supervisor's email address, if any.

`Pbook++` **Phonebook & configuration request**
An Email reporting the complete phonebook and all system settings will be issued to supervisor's email address, if any.

4. LOCAL CONTROL

Advanced configuration, local control, tracing and other features are available through serial communication link. RJ45 8 pin com port is located under the front cover.
Link cable 1013.00.02 is available from local resellers.
Although GsmSuite can give a more powerful control, a command line interface is anyway available using a terminal emulation program.
RS-232 settings : (DCE) 300 ... 115200 bit/s
8 data bits, 1 stop bits, 1 parity bit
Hardware handshake

4.1 Initialization

During the start-up procedure, after a power on, some information are issued to local com port.

```
SIM: READY
```

Once the SIM card has been detected, open and loaded.

```
Software Version: CONTROL 00.02
IMEI: 012345678901234
Serial Number 505340073861453
Production Date (W/Y): 34/2005
Firmware Version 650a09gg.Q2406B 1949844 122204 14:53
Hardware Version 4.53
```

Once the initialization has been completed successfully.

```
13/03/15,15:16:03 gsm ok I TIM
```

Once the network registration has been performed successfully.

```
13/03/15,15:16:06 gprs ok
```

Once the GPRS service has been detected as available (GPRS types only).

```
13/03/15,15:16:17 received sms
31/03/06,10:07:35 time sync
```

Once the real time clock autosync has been performed successfully (if device info provided).

4.1.1 SIM ERROR

When the SIM card is protected and a mismatch PIN occur the unit doesn't complete the initialization, waiting for the correct PIN to be entered:

```
001:  PIN error: enter PIN [AT+CPIN="XXXX"].
      Remember to update Index 297.
```

If a wrong PIN is entered 3 times, the SIM card will ask for the PUK (Personal Unblocking Key):

```
002:  SIM card locked: enter [AT+CPIN="PUK","NEWPIN"].
      Remember to update Index 297.
```

The new PIN must be assigned when PUK is provided.
Remember to update the PIN code stored at index 297: this is the PIN code used to open the SIM card at power-on when the SIM card PIN was enabled.

4.2 Unprotected commands

Some commands are allowable at any time.

AT#TRON
Enable event tracing to local com port (default enabled).

AT#TROFF
Disable event tracing to local com port.

AT#VER?
Information about software version

AT#PIN=xxxx
Enter the SIM card PIN number when required. **xxxx** SIM card PIN

AT#KOPEN=xxxx
Open the console to protected commands. **xxxx** device PIN

AT#KEND
Close the console to protected commands.

AT#CODE=zzzz
Device activation after software upgrade. **zzzz** activation code (given by manufacturer)

4.3 Protected commands

All commands that involve local control or system settings are password protected and can be entered only once the `AT#KOPEN` command has been given.
All standard AT commands are available (except for some inhibited editing commands).
Following custom AT commands are allowed:

`AT#PIN=xxxx,yyyy`
Change the SIM card and device PIN.

`xxxx`	old SIM card PIN
`yyyy`	new SIM & device PIN

`AT#STOP`
Disable remote CLIP control
Same as supervisors `stop` remote command

`AT#STATUS`
Send a status SMS to console
Same as remote status request

`AT#START`
Enable remote CLIP control
Same as supervisors `start` remote command

`AT#CLIP=x`
Incoming call simulation

`x`	Call type	1 voice (or fax) 2 data

`AT#OUT=Out,Stat,Time`
Unconditional activation of outputs

`Out`	1	output 1
	2	output 2
`Stat`	0	OFF
	1	ON
	2	ON & LATCH
`[version 01.03 or later]` **`Time`**	DDhhmm	release time `[Stat 1]`
	DDMMYYhhmm	release date `[Stat 2]`

`AT#In=In,Stat`
Input action simulation

`In`	1	input 1
	2	input 2
`Stat`	0	open
	1	close

`AT#SET="D,dd/mm/yy,hh:mm:ss"`
Real time clock setting

`D`	Weekday	1÷7 (Monday÷Sunday)
`dd`	Day	1÷31
`mm`	Month	1÷12
`yy`	Year	00÷99 (2000÷2099)
`hh`	Hours	00÷23
`mm`	Minutes	00÷59
`ss`	Seconds	00÷59

`AT#SET?`
Current clock settings: **`#SET:"D,dd/mm/yy,hh:mm:ss"`**
`[version 01.03 or later]` **`D = 0`** when clock has never been set.

5. MESSAGES

This device can send many different messages, following specific request or local event.

5.1 Status SMS

A status SMS, issued on request or as leading part of alert message, can give complete information about the status of remote controlled system:

```
Building 1                      < 1st ROW
door control unit               < 2nd ROW

Out1 : on 00:01:22              < 3rd ROW
Out2 :!on 14/09/06 18:30        < 4th ROW
In 1 :open                      < 5th ROW
In 2 :close                     < 6th ROW
Mode :pulse on                  < 7th ROW
Blackout                        < 8th ROW
```

5.1.1 First Row

Short text reporting the identifier of controlled system.

5.1.2 Second Row

Detailed information about controlled system.

5.1.3 Third and Fourth Rows

Status of outputs:

`off`	output is released, inactive
`on`	output is active if the output was activated for specific time, remaining time will follow
`!on`	output is active and latched release date could follow if the output was activated specifying release date
`|`	when output is involved in a clip sequence, the remaining time to output release will follow

5.1.4 Fifth and Sixth Rows

Status of inputs:

`open`	input is open, inactive
`close`	input is closed, active

5.1.5 Seventh Row

Information about remote free call (CLIP) control mode and status:

mode	status	
	`on`	remote clip control enabled
	`off`	remote clip control disabled
`none`		no clip mode defined, inactive
`pulse`		pulse mode
`toggle`		toggle mode
`reverse`		reverse mode
`dtmf`		dtmf mode

5.1.6 Eight Row

This optional information is displayed only when the unit is powered by internal backup battery and main power supply is missing.

6. USERS

Only authorized users can issue commands to the unit, both free calls and SMS.

6.1 Add Permanent users

Usually up to 250 users can be stored into modern SIM card.
It's easy to add, edit or remove SIM card entries using any cellular phone or SIM card reader/writer or by means of GsmSuite programming software.
Any supervisor can also add users issuing an SMS:

```
+0,INDEX,TEL,NAME
```

6.1.1 INDEX

The position assigned inside SIM card phonebook, starting from index 1 up to max allowable position of SIM card phonebook.
Omitting index, the user will be stored at first available position.

6.1.2 TEL

The telephone number that will be recognized. Number should be stored in international format (including Country code). Up to 20 characters available.

6.1.3 NAME

The name of the user associated with the telephone number. Up to 14 characters available.

6.1.4 Example

```
+0,001,+4412345678,Draco Malfoy
```

Add Draco Malfoy to SIM Phonebook position 1

```
+0,,+4412345678,Draco Malfoy
```

Add Draco Malfoy to first available index in SIM Phonebook

6.1.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 1 marker to specify the phone number field defined (`*`) or undefinded (-):

```
1,Draco Malfoy,*
,Draco Malfoy,*
```

no index when stored at first available position

6.2 Add Conditioned users

Up to 250 users can be stored into the device Phonebook by means of GsmSuite programming software. Any supervisor can also add users issuing an SMS:

```
+1,INDEX,TEL,NAME,TICKET,ENABLE,DISABLE,,,LEADER
```

6.2.1 INDEX

The position assigned inside the internal phonebook, starting from index 1 up to 250.
Omitting index, the user will be stored at first available position.

6.2.2 TEL

The telephone number that will be recognized. Number should be stored in international format (including Country code). Up to 20 characters available.

6.2.3 NAME

The name of the user associated with the telephone number. Up to 14 characters available.

6.2.4 TICKET

It's possible to define a number of allowable operations for conditional users, specifying a number in the range 1÷999. Every command issued by the user will decrease the available tickets, once the ticket available is zero the user cannot issue commands.
It's possible to specify the optional index for an interactive message (0÷9, stored at group 8) that will be sent at each operation, remaining ticket will be reported at the end of this SMS.

`ttti`	`ttt`	available tickets 0÷999
	`i`	identifier of interactive message 0÷9

6.2.5 ENABLE

It's possible to enable a user belonging to group 1 starting from a specific date and time.
It's possible to specify the optional index for an interactive message (0÷9, stored at group 8) that will be sent once the user has been enabled.

`ddmmyyhhmmi`	`dd`	day of the month, 01÷31
	`mm`	month 01÷12
	`yy`	year 00÷99 (2000÷2099)
	`hh`	hour 00÷23
	`mm`	minute 00÷59
	`i`	identifier of interactive message 0÷9

6.2.6 DISABLE

It's possible to disable a user belonging to group 1 at specific date and time.
Once period is expired the user will be removed from the Phonebook.
It's possible to specify the optional index for an interactive message (0÷9, stored at group 8) that will be sent once the user has been disabled.

`ddmmyyhhmmi`	`dd`	day of the month, 01÷31
	`mm`	month 01÷12
	`yy`	year 00÷99 (2000÷2099)
	`hh`	hour 00÷23
	`mm`	minute 00÷59
	`i`	idenftifier of interactive message 0÷9

6.2.6 LEADER

It's possible to specify a leader text to be placed at beginning of interactive message, this could be a salutation specific for each user. Up to 56 characters available.

6.2.7 Example

`+1,014,+4412345678,Draco Malfoy`
Add Draco Malfoy to internal Phonebook position 14

`+1,021,+4487654321,Argus Filch,0501,,,,,Mr. Argus Filch`
Add Argus Filch to internal Phonebook position 21, specifying 50 tickets and interactive message 1 to be sent at each command issued, beginning with specific leading text

`+1,033,+4485854300,Hermione,,01010612302,31010616303,,,Dear Hermione`
Add Hermione to position 33, enabled from 01/01/06 12:30 to 31/01/06 16:30.
Interactive message 2 will be sent once enabled and interactive message 3 will be sent once disabled, both beginning with specific leading text

`+1,044,+447774245,Harry Potter,1001,,20020600003,,,Dear Mr. Potter`
Add Harry Potter to position 44, specifying 100 tickets and interactive message 1 to be sent at each command issued. User will be removed anyway at 20/02/06 00:00 issuing interactive message 3. Specific leading text specified for interactive messages.

6.2.8 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don't (`-`):

```
14,Draco Malfoy,*------
21,Argus Filch,**----*
33,Hermione,*-**--*
44,Harry Potter,**-*--*
```

7. SUPERVISORS

Some operations are reserved to supervisors.
System can work also without any supervisor, of course nobody can issue configuration SMS nor edit Phonebook in remote mode.
To operate both like user and supervisor store the entry in both groups.

7.1 First Supervisor

To store the first supervisors without using GsmSuite, anyone can send the following SMS:

```
#XXXX.NAME.EMAIL*
```

The telephone number of SMS sender is automatically collected from the incoming call presentation (thus the telephone number must be kept visible) and will be assumed as the first supervisor's telephone number.
First supervisor will be stored at position 401.

7.1.1 XXXX

The system PIN, the default number is 0000 and can be later modified by any supervisor.

7.1.2 NAME

The name of the first supervisor to be stored. Up to 14 characters available.
Do not use dot characters within name field.

7.1.3 EMAIL

The optional Email address of the supervisor. Up to 40 characters available.
GPRS devices can send some Email messages to specified address.

7.1.4 Example

```
#0000.Harry Potter.harry.potter@hogwarts.com*
```

Store Harry Potter like supervisor (group 7) at first available position (401).

SMS must begin with hash character [#] and terminated with star character [*].
The dot [.] character is the separator between fields and must not be used inside NAME field.
It's possible to use dot characters inside Email field.
Both ? and @ are allowed like domain specification character.

To avoid mistakes the supervisor's telephone number is taken directly from the caller identifier (the number must be kept visible).

To store the first supervisor without specifying the Email address send:

```
#0000.Harry Potter*
```

7.1.5 Confirmation

Once First supervisor has been successfully stored, device will send back an SMS:

```
332: Supervisor succesfully added
```

If a supervisor already exist, it will be impossible to store the incoming one. The unit will send back an error SMS:

```
331: Supervisor group isn't empty
```

7.2 Add Supervisors

Up to 100 supervisors can be stored into the device Phonebook by means of GsmSuite programming software. Any supervisor can also add supervisors issuing an SMS:

```
+7,INDEX,TEL,NAME,,,,,EMAIL
```

7.2.1 INDEX

The position assigned inside the internal phonebook, starting from index 401 up to 500. Omitting index, the supervisor will be stored at first available position.

7.2.2 TEL

The telephone number that will be recognized. Number should be stored in international format (including Country code). Up to 20 characters available.

7.2.3 NAME

The name of the supervisor to be stored. Up to 14 characters available.

7.2.4 EMAIL

The optional Email address of the supervisor. Up to 40 characters available.
GPRS devices can send some Email messages to specified address.

7.2.5 Example

```
+7,405,+4485854300,Hermione,hermione.granger@hogwarts.com
```

Store Hermione into supervisor's group at position 405.

7.2.6 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don't (`-`):

```
405,Hermione,*----*-
```

8. RECIPIENTS

It's possible to define specific recipients for each local event.
Recipients can receive alerts in many different formats. It's possible to set one or more different format to be sent at same time when the specific event occurs.

8.1 Add Recipients

Up to 100 recipients can be stored into the device Phonebook by means of GsmSuite programming software. Any supervisor can also add recipients issuing an SMS:

```
+9,INDEX,RING,NAME,SMS,EVENT,FAX,XSMS,EMAIL,TEXT
```

8.1.1 INDEX

The position assigned inside the internal phonebook, starting from index 301 up to 400.
Omitting index, the recipient will be stored at first available position.

8.1.2 RING

The telephone number that will receive a simple call when the specified event occurs.
Number should be stored in international format (including Country code).
Up to 20 characters available.

8.1.3 NAME

The name of the recipient to be stored. Up to 14 characters available.

8.1.4 SMS

The telephone number that will receive an SMS when the specified event occur.
Text of this SMS is specified in the field `TEXT`.
Number should be stored in international format (including Country code).
Up to 20 characters available.

8.1.5 EVENT

The numeric code associated with specific event:

`00` `blackout`
alert will be sent at power failure (if backup battery is provided)

`01` `in 1 closing or Vin > A threshold`
alert will be sent at input 1 closing or when analog input signal is falling below specified threshold A (group 5 index 281)

`02` `in 2 closing or Vin > A threshold`
alert will be sent at input 2 closing or when analog input signal is falling below specified threshold A (group 5 index 282)

`10` `power good`
alert will be sent when main power supply is available

`11` `in 1 opening or Vin < B threshold`
alert will be sent at input 1 opening or when analog input signal is rising above specified threshold B (group 5 index 281)

`12` `in 2 opening or Vin < B threshold`
alert will be sent at input 2 opening or when analog input signal is rising above specified threshold B (group 5 index 282)

`30` `remote tracing`
a log SMS will be sent on every local event, including system event (network availability, remote editing, message processing…).
This log message will report time and date.

8.1.6 FAX

It's the telephone number that will receive an SMS issued in FAX format when the specified event occurs. The formatting service (if available) is provided by the operator.
Text of this FAX is specified in the field `TEXT`.
Number should be stored in international format (including Country code).
Up to 20 characters available.

8.1.7 XSMS

It's the telephone number that will receive an eXtended SMS when the specified event occurs.
The text of this SMS is specified in the field `TEXT`, the complete status will be included.
Number should be stored in international format (including Country code).
Up to 20 characters available.

8.1.8 EMAIL

It's the address that will receive an Email when the specified event occurs. Up to 40 characters available.
GPRS devices can send some Email messages to specified address.

8.1.9 TEXT

Is the text issued within messages when specific event occur. Up to 56 characters available

8.1.10 Example

```
+9,301,,Harry Potter,+441234567,00,,,,power fail
```
SMS sent when main power supply is lost (if backup battery is provided)

```
+9,,+441234567,Harry Potter,,10
```
Simple free call issued when power supply is back

```
+9,,,Harry Potter,,01,,,harry@harry.com,pump off
```
Email sent on input 1 closing

```
+9,,+441234567,Harry Potter,,30,,,harry@harry.com
```
Simple free call and Email issued at every local event (log tracing)

8.1.11 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don't (-):

```
301,Harry Potter,**----*
302,Harry Potter,*-*----
303,Harry Potter,-*---**
304,Harry Potter,*-*--**
```

9. DEVICE INFO

Although not mandatory, some information about the device and its application environment can improve the readability of message sent by the unit and activate some specific features.

9.1 Edit Device info

Specific information about device environment are stored at index 300, group 3 and can be written and/or modified by means of GsmSuite programming software. Such information can be stored or modified also by any supervisor issuing an SMS:

```
+3,300,TEL,INFO,,,,,EMAIL,TEXT
```

9.1.1 TEL

It's the telephone number of the device itself. Number should be stored in international format (including Country code). Up to 20 characters available.
When this telephone number is provided, the unit will be able to perform an auto synchronization of internal real time clock (3 attempts after power-on if an invalid clock is found).
This phone number will be used also for scheduled anti-blacklist calls.

9.1.2 INFO

A short text to identify the device application. Up to 14 characters available.
This text will be reported in any status SMS, identifying the sender.

9.1.3 EMAIL

The optional Email address assigned to the device itself. Up to 40 characters available.
Any Email sent out by GPRS devices are sent also to this Email address.
Usually this is the mailbox assigned by network operator to SIM card number and will be accessible from any Internet connection, providing correct user ID and password.

9.1.4 INFO

Detailed information about the application controlled by this device.
Up to 56 characters available.
This text will be reported in any status SMS, identifying the sender.

9.1.5 Example

```
+3,300,+4468795412,Building 1,,,,,,Living room 1st floor
```

9.1.6 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don't (`-`):

```
300,Building 1,**----*
```

10. INPUT SETTINGS

It's possible to enable, disable and specify behaviour for each device input.
To avoid unwanted alarms, input sampling time (filtered) is 10 sec for multipurpose digital/analog inputs.
Operating in digital mode this will lead to a debounce time of 10÷20 seconds.
Operating in analog mode, value is upgraded on a 10 seconds basis.

10.1 Edit Input settings

Each local input can be configured by means of GsmSuite programming software.
Any supervisor can also edit settings issuing an SMS:

```
+5,INDEX,,NAME,THRB,THRA,FACTOR,,UNIT,TEXT
```

10.1.1 INDEX

The index assigned to any local device input:

```
281    In 1
282    In 2
```

10.1.2 NAME

A label identifying the local input.

```
In1    Input 1
In2    Input 2
```

10.1.3 THRB (Threshold B: input Below threshold)

A value defining the alarm threshold B. No action detected leaving the field blank.
Specifying `0` an alarm will be detected when input is opening (digital mode).
It's possible to define an analog threshold specifying a value between `000001 (0,1)` and `1000000 (10000)`.
An alarm will be detected when scaled input value will fall below threshold B (below).

10.1.2 THRA (Threshold A: input Above threshold)

A value defining the alarm threshold A. No action detected leaving the field blank.
Specifying `0` an alarm will be detected when input is closing (digital mode).
Is possible to define an analog threshold specifying a value between `000001 (0,1)` and `1000000 (10000)`.
An alarm will be detected when input value will raise above threshold A (above).

10.1.4 FACTOR

Inputs can read voltage in the range 0,1 ÷ 10,000 V.
This value can be adjusted by a scale factor in order to show the variable in the preferred range between `0001÷100 (0,1÷1000)`. Default value is `0010(1)`.
Specifying `0010 (1,00)` a real measure of 10V will be reported as `10`.
Specifying `8520 (85,2)` a real measure of 10V will be reported as `852`.
Specifying `0002 (0,20)` a real measure of 10V will be reported as `2`.

10.1.5 UNIT

It's the unit that will be shown after measured value. Up to 40 characters available.

10.1.6 TEXT

It's the text reported to identify the input in log strings when trace in enabled.
Up to 52 characters available.

10.1.7 Example

`+5,281,,In1,350,750,0020,,%RH,relative humidity`
Receiving a linear humidity sensor output 0÷5 V equal to 0÷100 %RH
Set input 1 to detect alarm when measured value falls below 35% and rise above 75%, multiplied by factor 2 (real measured values are 1,75 and 3,75 Volts), units shown: %RH

`+5,281,,In1,210,270,0030,,V,supply voltage`
Set input 1 to detect alarm when measured value falls below 21V and rise above 27V, multiplied by factor 3 (real measured values are 7,0 and 9,0 Volts), units shown: V

`+5,282,,In2,0,0,0010,,,door limit switch`
Set input 2 in digital mode, reacting to contact closing and contact opening.

`+5,281,,In2,1500,2150,0250,C,kiln temperature`
Receiving a linear temperature transducer output 0÷10 V equal to 0÷250 °C
Set input 2 to detect alarm when measured temperature falls below 150°C and rise above 215°C, multiplied by factor 25 (real measured value are 6,0 and 8,6 Volts).

10.1.8 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don't (`-`):

```
281,In1,-****-*
281,In1,-****-*
282,In2,-****--
281,In2,-****-*
```

11. COMMANDS SETTINGS

Remote commands are factory preset to a default text.
Remote DTMF codes are factory preset to a default value.

11.1 Status request

A specific command is available to ask for system status that will be issued like SMS.
Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,251,DtmfCode,SmsCommand,,,,,LogText
```

11.1.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **0**

11.1.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **D**

11.1.3 LogText

This text will be included in the log string issued when trace is active.
Default is **status request**

11.1.4 Example

`+4,251,5,status,,,,,,remote status request`
Set DTMF code to “5”, SMS command to “status” and log text “remote status request”

11.1.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don’t (-):
`251,STATUS,*----*`

11.2 Set output 1

Specific SMS command and DTMF code are available to set output 1 ON.
Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,252,DtmfCode,SmsCommand,,,,,LogText
```

11.2.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **1**

11.2.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **S1**

11.2.3 LogText

This text will be included in the log string issued when trace is active.
Default is **out1 on request**

11.2.4 Example

```
+4,252,7,on,,,,,,pump activation
```

Set DTMF code to “7”, SMS command to “on” and log text “pump activation”

11.2.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don’t (-):

```
252,on,*----*
```

11.3 Set output 2

Specific SMS command and DTMF code are available to set output 2 ON.
Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,253,DtmfCode,SmsCommand,,,,,LogText
```

11.3.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **2**

11.3.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **s2**

11.3.3 LogText

This text will be included in the log string issued when trace is active.
Default is **out2 on request**

11.3.4 Example

```
+4,253,6,mix,,,,,,oxygen recovery cycle
```

Set DTMF code to “6”, SMS command to “mix” and log text “oxygen recovery cycle”

11.3.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don’t (`-`):

```
253,mix,*----*
```

11.4 Reset output 1

Specific SMS command and DTMF code are available to reset output 1 OFF.
Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,254,DtmfCode,SmsCommand,,,,,LogText
```

11.4.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **4**

11.4.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **R1**

11.4.3 LogText

This text will be included in the log string issued when trace is active.
Default is **out1 off request**

11.4.4 Example

```
+4,254,9,off,,,,,,pump release
```

Set DTMF code to “9”, SMS command to “off” and log text “pump release”

11.4.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don’t (-):

```
254,off,*----*
```

11.5 Reset output 2

Specific SMS command and DTMF code are available to reset output 2 OFF.
Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,255,DtmfCode,SmsCommand,,,,,LogText
```

11.5.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **5**

11.5.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **R2**

11.5.3 LogText

This text will be included in the log string issued when trace is active.
Default is **out2 off request**

11.5.4 Example

```
+4,255,8,stopmix,,,,,,oxygen recovery stop
```

Set DTMF code to “8”, SMS command to “stopmix” and log text “oxygen recovery stop”

11.5.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don’t (-):

```
255,stopmix,*----*
```

11.6 Set and latch output 1

Specific SMS command and DTMF code are available to set output 1 ON and latch the status. Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,256,DtmfCode,SmsCommand,,,,,LogText
```

11.6.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **7**

11.6.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **M1**

11.6.3 LogText

This text will be included in the log string issued when trace is active.
Default is **out1 on! request**

11.6.4 Example

```
+4,256,3,run,,,,,,pump on and latch
```

Set DTMF code to “3”, SMS command to “run” and log text “pump on and latch”

11.6.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don’t (`-`):

```
256,run,*----*
```

11.7 Set and latch output 2

Specific SMS command and DTMF code are available to set output 2 ON and latch the status. Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,257,DtmfCode,SmsCommand,,,,,LogText
```

11.7.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **8**

11.7.2 SmsCommand

The text that will be associated to this command when received within an SMS coming from authorized users. Must be a single word, up to 14 characters long.
Default is **M2**

11.7.3 LogText

This text will be included in the log string issued when trace is active.
Default is **out2 on! request**

11.7.4 Example

```
+4,257,3,mix!,,,,,,oxygen mix latched
```

Set DTMF code to “3”, SMS command to “mix!” and log text “oxygen mix latched”

11.7.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (`*`) and which don’t (`-`):

```
257,mix!,*----*
```

11.8 Open audio channel

Specific SMS command and DTMF code are available to open the audio channel (specific feature must be available).
Default settings can be modified by means of GsmSuite or by supervisors issuing the following SMS:

```
+4,258,DtmfCode,SmsCommand,,,,,LogText
```

11.8.1 DtmfCode

A single number in the range 0÷9 that will be associated to this command when the specific key will be pressed while an authorized users calls and the unit will answer in DTMF mode.
Default is **8**

11.8.2 SmsCommand

Since this command can be issued only while online, text is provided for easy readability and no SMS command is available.
Default is **audio**

11.8.3 LogText

This text will be included in the log string issued when trace is active.
Default is **open audio**

11.8.4 Example

```
+4,258,1,,,,,,,environmental listening
```

Set DTMF code to “1” and log text “environmental listening”

11.8.5 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don’t (-):

```
258,audio,*----*
```

12. INTERACTIVE MESSAGES

This unit can issue some interactive messages to conditional users once their privileges are changing: upon activation, expiring and ticket operation.

12.1 Edit Interactive SMS

Up to 10 SMS can be stored to be used within the conditional operation by means of GsmSuite programming software. Any supervisor can also add interactive SMSs issuing an SMS:

```
+8,INDEX,ID,DESCRIPTION,,,,,,Text of SMS
```

12.2.1 INDEX

The position assigned inside the internal phonebook, starting from index 270 up to 279. Omitting index, the supervisor will be stored at first available position.

12.2.2 ID

Is the message identifier (`i 0÷9`) to be used within ***ticket enable disable*** fields of conditional users.

12.2.3 DESCRIPTION

An optional short description to identify the message. Up to 14 characters available.

12.2.4 Text of SMS

The message that will be sent after the leader text defined for each conditional user.
Up to 56 characters available.

12.2.5 Example

`+8,270,0,Welcome,,,,,,Call +44123456789 to open the gate`
Store interactive message 0 to be used when enabling a conditional user at position 270.

`+8,271,1,Goodbye,,,,,,Your account has been expired`
Store interactive message 1 to be used when disabling a conditional user at position 271.

`+8,272,2,Ticket,,,,,,Remaining tickets:`
Store interactive message 2 to be used managing tickets at position 272.

12.2.6 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don't (-):

```
270,Welcome,*-----*
271,Goodbye,*-----*
272,Ticket,*-----*
```

13. SYSTEM SETTINGS

General settings are available to configure specific features.

13.1 Call control (CLIP)

Any incoming call from authorized users can activate outputs. Different behaviour is available and can be selected using GsmSuite or modified by supervisors issuing the following SMS:

`+2,290,,CLIP,PULSE,REV1,HOLD,REV2,ANSW,MODE`

`pulse`	On time	01 ÷ 60” default 3”
`rev1`	Out1 ON time in reverse mode	01 ÷ 60” default 3”
`hold`	Hold time in reverse mode	01 ÷ 600” default 3”
`rev2`	Out2 ON time in reverse mode	01 ÷ 60” default 3”
`answ`	Time to answer in toggle mode	01 ÷ 60” default 15”
`mode`	none, pulse, toggle, reverse, dtmf	

13.1.1 PULSE

Outputs will stay on for this specified time on incoming call from registered user in pulse mode.

13.1.2 REV1

Output 1 will stay on for this specified time during a reverse sequence activated by incoming call from registered user.

13.1.3 HOLD

It’s the delay after output 1 release and output 2 activation during a reverse sequence activated by incoming calls from registered users.

13.1.4 REV2

Output 2 will stay on for this specified time during a reverse sequence activated by incoming call from registered user.

13.1.5 ANSW

After this time the unit will answer to incoming calls from registered users, playing a low tone after output release or four high tones after output activation.
No ringback will be issued in such case.

13.1.6 MODE

The selected operating mode for free calls activation.

13.1.6 Example

`+2,290,,CLIP,3,3,3,3,10,none`
Disable the CLIP feature. Following parameters can be specified anyway.

`+2,290,,CLIP,3,3,3,3,10,pulse`
Enable the pulse mode, output will activate 3 seconds on recognized incoming calls.

`+2,290,,CLIP,3,3,3,3,10,toggle`
Enable the toggle mode.

`+2,290,,CLIP,3,5,140,5,10,reverse`
Enable the reverse mode: 5 / 140 / 5 seconds activation sequence.

`+2,290,,CLIP,3,3,3,3,10,dtmf`
Enable the dtmf mode.

13.1.7 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don’t (-):
`290,CLIP,-******`

13.2 Feedback

It's possible to force the unit to issue a confirmation at any valid incoming CLIP command by means of GsmSuite or when a supervisors is issuing the following SMS:

`+2,291,,FEEDBACK,TIME,,,,,MODE`

`time`	Ringback time	5 ÷ 60" default 10"
`mode`	none, ringback, status	

13.2.1 NONE

No feedback is sent back after a valid command.
It's possible to ask for a confirmation time by time specifying the appropriate request inside remote SMS commands.

13.2.2 RINGBACK

Any valid command will be confirmed issuing a call back to the user that made the operation.
The duration of all ringback calls is set in the field `TIME`.

13.2.3 STATUS

Any valid command will be confirmed issuing a status SMS to the user that made the operation.

13.2.4 Example

`+2,291,,FEEDBACK,10,,,,,none`
Disable any confirmation feedback.

`+2,291,,FEEDBACK,10,,,,,ringback`
Enable ringback confirmation to any incoming command.

`+2,291,,FEEDBACK,10,,,,,status`
Enable status SMS confirmation to any incoming command.

13.1.8 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don't (-):
`291,FEEDBACK,-**---*`

13.3 Tracing

Although trace can be enabled or disabled by means of specific commands issued from the local console, it's possible to preset this feature by means of GsmSuite or specific SMS sent by supervisors:

```
+2,292,,TRACE,,,,,,MODE
```

13.3.1 MODE

Default setting is TRON (Trace ON). Any local event will be traced to com port.
Specifying TROFF (Trace OFF) no log string will be sent to local com port.

13.3.2 LOG STRING

The log string issued to local com port when trace is enabled is the following:

```
DD/MM/YY,HH:MM:SS,USER,EVENT
```

DD	Day of the month	(1 ÷ 31)
MM	Month	(1 ÷ 12)
YY	Year	(00 ÷ 99)
HH	Hours	(00 ÷ 23)
MM	Minutes	(00 ÷ 59)
SS	Seconds	(00 ÷ 59)
USER	Involved user, if any	
EVENT	Event description and optional info	

13.3.3 Example

```
+2,292,,TRACE,,,,,,TROFF
```
Disable tracing to local com port.

```
+2,292,,TRACE,,,,,,TRON
```
Enable tracing to local com port.

13.3.4 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don't (-):

```
292,TRACE,-*----*
```

13.4 APN (Access Point Name)

Specific setting must be provided for GPRS enabled devices in order to attach the network and use Email service.

13.4.1 APN (Access Point Name)

APN is the address of the access point provided by network operator.
Setting can be done by means of GsmSuite or specific SMS sent by supervisors:

```
+2,293,,APN,,,,,,address
```

13.4.2 USER ID

The user can log into the network specifying his own USER ID.
This parameter can be usually set on the network operator's website.
Setting can be done by means of GsmSuite or specific SMS sent by supervisors:

```
+2,294,,UserID,,,,,,UserName
```

13.4.3 PASSWORD

The access is usually granted entering a password.
This parameter, when required, can be usually set on the network operator's website.
Setting can be done by means of GsmSuite or specific SMS sent by supervisors:

```
+2,295,,Password,,,,,,APN password
```

13.4.4 SMTP SERVER

Emails are delivered to a specific SMTP (Simple Mail Transfer Protocol) server.
This address is provided by network operator.
On mobile network there is no authentication procedure because the mobile phone is anyway identified by his own SIM card identifier, thus no password must be provided to access server.
Setting can be done by means of GsmSuite or specific SMS sent by supervisors:

```
+2,296,,SMTP server,,,,,,server address
```

13.4.5 Example

```
+2,293,,APN,,,,,,uni.tim.it
```
Set Access Point Name.

```
+2,294,,UserID,,,,,,myownname
```
Set User ID.

```
+2,293,,Password,,,,,,myownpassword
```
Set User Password.

```
+2,293,,SMTP server,,,,,,box.tin.it
```
Set SMTP server address.

13.4.6 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don't (-):

```
+2,293,APN, ------*
+2,294,UserID, ------*
+2,295,Password,------*
+2,296,SMTP server, ------*
```

13.5 PIN

Any device is protected with a PIN (Personal Identification Number).
This PIN must be specified entering some commands and opening a configuration session.
Default factory PIN `0000` can be modified by means of GsmSuite or specific SMS sent by supervisors:

```
+2,297,,PIN,,,,,,NUMBER
```

13.5.1 Operating without SIM PIN

The simplest way is to put your SIM card into a cellular phone and program it so it won't ask for the PIN. The SIM card is 'open' and someone could steal the SIM card, use it and read the information inside.

13.5.2 Enter default SIM PIN

Since any device is factory set to a default PIN = 0000 (four zeroes), put your SIM card into a cellular phone and program the PIN using this default number.

13.5.3 Change default SIM PIN

Of course, maximum protection is achieved when default PIN is changed to a new one and kept secret. Using GsmSuite device and SIM PIN will be aligned, when the editing of index 297 is made by SMS, put your SIM card into a cellular phone and program the PIN using the new stored number .
Common PIN are 4 characters long.
This device can anyway handle also long PIN (8 characters).

13.5.4 WARNING

If you insert a SIM card that asks for a PIN number different from that stored into the unit, this will not operate. Turning on the device 3 times having mismatch condition, SIM card will lock up and you must provide the PUK (PIN Unblocking Key).

13.5.5 Example

```
+2,297,,PIN,,,,,,1234
```

Set new device PIN to 1234, this will not affect the SIM card.

13.5.6 Confirmation

Once Phonebook edit has been successfully done, device will send back an SMS specifying assigned index, name and 7 markers to specify which fields are defined (*) and which don't (-):

```
297,PIN,-*----*
```

14. DELETE ENTRIES

Any entry stored into SIM card or internal memory can be deleted by means of GsmSuite programming software. Any supervisor can also remove entries issuing an SMS:

```
-GROUP,INDEX,TEL,NAME
```

14.1 Groups

Entries are stored belonging to groups:

```
GROUP 0     SIM card users (permanent)
GROUP 1     ME conditioned users
GROUP 2     System settings
GROUP 3     Device Info
GROUP 4     Commands
GROUP 5     Input settings
GROUP 6     Machines (not available on this unit)
GROUP 7     Supervisors
GROUP 8     Interactive SMS
GROUP 9     Recipients
```

14.2 Delete by Index

A single entry can be removed specifying the index.

14.2.1 Example

```
-0,102,
```

SIM card (group 0) position 102 will be deleted.

14.3 Delete by Telephone number

Specific telephone number (not for SMS, FAX or XSMS recipients fields) will be removed from all entries. The entry is deleted if the specified telephone number is the only stored field.

14.3.1 Example

```
-1,,+441234567
```

Internal Phonebook (group 1), specified telephone number removed from all entries.

14.4 Delete by Name

Specifying the Name, all entries related to that name will be removed.
Name must match exactly (uppercase, lowercase, spaces).

14.4.1 Example

```
-9,,,Harry Potter
```

All entries belonging to group 7 (Recipients) registered at name “Harry Potter” will be removed.

14.5.1 Confirmation

Once a Phonebook delete operation has been successfully done, device will send back an SMS specifying the index of removed entry or entries:

```
102        name and field could follow, depending on delete operation type
301
302
303
```

15. SCHEDULED OPERATIONS

It's possible to specify up to 100 predefined operations to be automatically executed on time basis. These actions will be served only if the synchronization of real time clock has been provided either by autosync or manual console command.

15.1 Store a scheduled operation

Although this operation can be easily performed by means of GsmSuite, any supervisor can store a scheduled activity through local console once access is granted using AT#KOPEN entering an AT command.
The same command could be issued like SMS (without any other command) by supervisors:

```
AT+WAGW="date/time",condition,01,frequency,"description"
```

15.1.1 date/time

Set the date and time for scheduled operation using the following format:

"yy/mm/dd,hh:mm:ss"

yy	year	00÷99 (2000÷2099)
mm	month	01÷12
dd	day	01÷31
hh	hours	00÷23
mm	minutes	00÷59
ss	seconds	00÷59

15.1.2 condition

Set conditional execution:

00	Even	no weekday limit
01	Weekend	day 6 (Saturday) and 7 (Sunday) only
02	No weekend	day 1 (Monday) to 5 (Friday) only
03	Monday	day 1 (Monday) only
04	Friday	day 5 (Friday) only
05	Last Sunday	last Sunday of any month only §

15.1.3 frequency

Set the frequency of operation:

00	once	at scheduled time and date only
01	daily	every day from scheduled date at scheduled time
02	weekly	every week from scheduled date at scheduled time
03	monthly	every month from scheduled date at scheduled time
04	yearly	every year from scheduled date at scheduled time

15.1.4 description

Set the type of operation:

out1 off	turn off output 1
out2 off	turn off output 2
out1 on	turn on output 1
out2 on	turn on output 2
status SMS	issue a status SMS to supervisors
incall on	enable incoming calls (CLIP feature)
incall off	disable incoming calls (CLIP feature)
interSMS on	enable interactive message service
interSMS off	disable interactive message service
antiblacklist	call to its own phone number §
autosync	send and receive real time clock synchronization SMS §

§ Relevant *DEVICE INFO* must be provided to complete the operation.

15.1.5 Example

```
AT+WAGW=”06/01/01,03:05:00”,05,00,01,”autosync”
```

Set autosync at 03:05:00 last Sunday of every month, useful to keep real time clock synchronized with summer time, starting from January 1st 2006

```
AT+WAGW=”06/03/11,08:00:00”,02,00,01,”out1 on”
```

Daily activation of output 1 at 08:00 during business week starting from March 11th 2006.

```
AT+WAGW=”06/02/01,16:30:00”,00,00,02,”status SMS”
```

Weekly issue of status SMS at 16:30 during business week starting from February 1st 2006.

15.1.6 Confirmation

Once scheduled operation has been successfully stored, device will return:

```
+WAWG:loc
```

where `loc` is the location assigned to scheduled operation and can be used to delete the activity that will be anyway removed once executed.

Scheduled operation older than current device time are rejected:

```
ERROR
```

15.2 Read a scheduled operation

Although this operation can be easily performed by means of GsmSuite, any supervisor can read scheduled activities through local console once access is granted using AT#KOPEN entering an AT command.
The same command could be issued like SMS (without any other command) by supervisors:

```
AT+WAGR=mode,location
```

15.2.1 mode

Select between specific location and all locations:

`0`	all locations
`1`	specified location only

15.2.1 location

The location to be read when mode selection is “specified location only”.

15.1.5 Example

```
AT+WAGR=0
```

Read all scheduled operations, the unit will return:

```
+WAGR:1,”06/01/01,03:05:00”,05,00,01,”autosync”
+WAGR:2,”06/03/11,08:00:00”,02,00,01,”out1 on”
+WAGR:3,”06/02/01,16:30:00”,00,00,02,”status SMS”
OK
```

```
AT+WAGR=1,1
```

Read 1st location only, the unit will return:

```
+WAGR:1,”06/01/01,03:05:00”,05,00,01,”autosync”
OK
```

15.3 Delete a scheduled operation

Although this operation can be easily performed by means of GsmSuite, any supervisor can delete a scheduled activity through local console once access is granted using AT#KOPEN entering an AT command.
The same command could be issued like SMS (without any other command) by supervisors:

```
AT+WAGD=mode,location
```

15.3.1 mode

Select between specific location and all locations:

0	all locations
1	specified location only

15.3.2 location

The location to be removed when mode selection is “specified location only”.

15.3.3 Example

`AT+WAGD=0`
Delete all scheduled operations

`AT+WAGD=1,1`
Delete 1ST location only.

15.3.4 Confirmation

Once scheduled operation has been successfully removed, device will return:
`OK`

17. MODEM OPERATION

To operate the unit like a pure modem, open the local com port and send the command:

```
WOPEN=5
```

this will suspend the normal activity of the unit, any incoming command will be discarded and local inputs ignored.
Local com port can receive AT commands and data stream like any GSM modem.
To recover the normal operation send the command:

```
WOPENRES
```

Removing power supply while in suspended modem the unit will restart the normal operation at further power on.

A. REGISTRY MAP

Settings, users and preferences are stored into SIM card and internal device memory into a wide table organization: ***the registry***, which can hold up to 750 entries.
Although there are 250 entries available for ME users, 100 entries available for supervisors and 100 entries available for recipients, the maximum number of entries allowable for these groups is depending on the memory size and occupation: in cheaper devices the maximum number of such entries could be less than allocated indexes.

GROUP	INDEX								
0 SIM USERS	1÷250 ♦	TEL	NAME						
1 ME USERS	1÷250	TEL	NAME	TICKET	ENABLE	DISABLE			LEADER
2 SYSTEM SETTINGS	290 CLIP		CLIP	PULSE	REV1	HOLD	REV2	ANSW	MODE
	291 FEEDBACK		FEEDBACK	TIME					MODE
	292 TRACE		TRACE						MODE
	293 APN		APN						ADDRESS
	294 USER ID		User ID						USERNAME
	295 PASSWORD		PASSWORD						APN PASSWORD
	296 SMTP SERVER		SmtpServer						SERVER ADDRESS
	297 PIN		PIN						NUMBER
	298 UNDEFINED								
3 DEVICE INFO	299 GENERAL			TYPE	NET			ENVIRO	SOFT
	300 SPECIFIC	TEL	INFO					EMAIL	TEXT
4 COMMANDS	251÷269 COMMANDS	DtmfCode	SmsCommand						LOGTEXT
5 INPUT SETTINGS	291÷288 INPUT SETTINGS		Name	THRB	THRA	FACTOR	UNIT		TEXT
6 MACHINES	289 TEMPREG		TEMP	SETPOINT	ANTIFROST	MODE	UNREG	UNIT	
7 SUPERVISORS	401÷500 SUPERVISORS								
8 INTERACTIVE SMS	270÷279 INTERACTIVE SMS	ID	Description						TEXT
9 RECIPIENTS	301÷400 RECIPIENTS	RING	NAME	SMS	EVENT	FAX	XSMS	EMAIL	TEXT

♦ Depending on the SIM card type.

B. SYSTEM TEXT

The unit can return some prompts or error messages during configuration and use.
Following the list of system text.

MESSAGE 001

001:PIN error. Enter PIN [AT+CPIN="XXXX"]. Remember to update Index 297.

Application: PIN management
Meaning: A wrong PIN number stored at Index 297 was entered during startup to unlock the SIM card.

MESSAGE 002

002:SIM card locked: enter [AT+CPIN="PUK","NEWPIN"]. Remember to update Index 297.

Application: PIN management
Meaning: Wrong PIN entered 3 times, you must unlock the SIM card using the PUK (Personal Unlock Key).

MESSAGE 101

101:Format error, length exceeding 25 characters or wrong parameters.

Application: AT#PIN command
Meaning: Overall command length must not exceed 25 characters and all involved parameters must be specified correctly.

MESSAGE 102

102:New PIN accepted.

Application: AT#PIN command
Meaning: New PIN stored successfully both in SIM card and device at Index 297.

MESSAGE 111

111:Trace enabled.

Application: AT#TRON command
Meaning: Command executed, log trace will be issued to com port from now on.

MESSAGE 112

112:Trace disabled.

Application: AT#TROFF command
Meaning: Command executed, log trace will not be issued to com port from now on.

MESSAGE 121

121:Wrong PIN.

Application: AT#KOPEN
Meaning: Console access denied, the PIN entered doesn't match the device PIN stored at Index 297.

MESSAGE 122

122:Console permanently locked.

Application: AT#KOPEN
Meaning: Wrong PIN entered 10 times, access to console is permanently locked. Device still working without problems but the unit must be sent back to factory to unlock the console access.

MESSAGE 123

123:Initialization in progress.

Application: AT#KOPEN command
Meaning: It's not possible to open the console until the initialization has been successfully completed.

MESSAGE 124

124:Console access unlocked.

Application: AT#KOPEN command
Meaning: Console access granted, it's possible to enter commands and to edit entries.

MESSAGE 131

131:Console access locked.

Application: AT#KEND command
Meaning: Console access closed, local commands and editing are not allowed from now on.

MESSAGE 141

141:Console access not allowed.

Application: Console commands
Meaning: Local commands and editing isn't allowed until console access is granted.

MESSAGE 142

142:Command not allowed.

Application: Console commands
Meaning: Specific command is not allowed.

MESSAGE 151

151:Clip service enabled.

Application: AT#START command
Meaning: Clip feature enabled, all incoming calls from recognized users will be served.

MESSAGE 152

152:Clip service disabled.

Application: AT#STOP command
Meaning: Clip feature disabled, all incoming calls from recognized users will be rejected.

MESSAGE 161

161:Format error, length exceeding 300 characters.

Application: AT#PHBK command
Meaning: Length of command line exceeding 300 characters.

MESSAGE 162

162:Previous editing command still in progress.

Application: AT#PHBK command
Meaning: A previous editing command hasn't been completed yet, new command cannot be served.

MESSAGE 171

171:Format error, length exceeding 25 characters or wrong parameters.

Application: AT#WPGR command
Meaning: Length of command line exceeding 25 characters or wrong parameters (1^{st} parameter must be 2÷3 and 2^{nd} parameter must be 0÷9).

MESSAGE 181

181:Format error, length exceeding 20 characters.

Application: AT#SETPOINT command
Meaning: Length of command line exceeding 20 characters.

MESSAGE 182

182:Invalid temperature setting.

Application: AT#SETPOINT command
Meaning: Temperature entered outside allowable range (0÷99).

MESSAGE 183

183:New temperature setting accepted.

Application: AT#SETPOINT command
Meaning: New setpoint temperature accepted.

MESSAGE 191

191:Format error, length exceeding 40 characters or wrong date/time.

Application: AT#SET command
Meaning: Length of command line exceeding 40 characters or wrong date / time string (must be D,dd/mm/yy,hh:mm:ss).

MESSAGE 192

192:Previous command servicing still in progress.

Application: AT#SET command
Meaning: A previous command hasn't been completed yet, new command cannot be served.

MESSAGE 193

193:New clock setting accepted.
Application: AT#SET command
Meaning: Real time clock successfully updated.

MESSAGE 201

201:Format error, length exceeding 25 characters or wrong/missing clock sync.
Application: AT#OUT command
Meaning: Length of command line exceeding 25 characters or wrong parameters or command including expiration date when previous clock sync hasn't been performed.

MESSAGE 202

202:Output command executed.
Application: AT#OUT command
Meaning: Output command successfully processed.

MESSAGE 211

211:Format error, length exceeding 18 characters or wrong parameters.
Application: AT#IN command
Meaning: Length of command line exceeding 18 characters or wrong parameters.

MESSAGE 212

212:Message buffer limit exceeded.
Application: AT#IN command
Meaning: Too many AT#IN command issued, device still processing messages for recipients. Command rejected.

MESSAGE 213

213:Input command executed.
Application: AT#IN command
Meaning: Input command successfully processed.

MESSAGE 221

221:Format error, length exceeding 12 characters or wrong parameters.
Application: AT#CLIP command
Meaning: Length of command line exceeding 18 characters or wrong parameters.

MESSAGE 222

222:Previous Clip sequence still in progress.
Application: AT#CLIP command
Meaning: A Clip sequence is already running. Command rejected.

MESSAGE 213

223:Clip simulation accepted.
Application: AT#CLIP command
Meaning: Command for recognized incoming call simulation accepted.

MESSAGE 301

301:Invalid Group or Index value.
Application: Local or remote editing
Meaning: Specified Group outside allowable range (0÷9) or Index outside allowable range (1÷500).

MESSAGE 302

302:Format error, first character must be + or -.
Application: Local or remote editing
Meaning: Editing commands must begin with ADD or REMOVE characters.

MESSAGE 303

303:Index out of boundaries.
Application: Local or remote editing
Meaning: Specified Index isn't belonging to specified Group.

MESSAGE 304

304:Missing Group.
Application: Local or remote editing
Meaning: The belonging Group for the new entry must be specified.

MESSAGE 305

305:Phonebook full.
Application: Local or remote editing
Meaning: No room available for new entries (entering a new record without index).

MESSAGE 306

306:Missing arguments.
Application: Local or remote editing
Meaning: Some mandatory arguments hasn't been specified.

MESSAGE 307

307:Phone number [H] must be in international format.
Application: Local or remote editing
Meaning: Telephone number in the H field must begin with international code.

MESSAGE 308

308:Phone number [M] must be in international format.
Application: Local or remote editing
Meaning: Telephone number in the M field must begin with international code.

MESSAGE 309

309:Phone number [F] must be in international format.
Application: Local or remote editing
Meaning: Telephone number in the FAX field must begin with international code.

MESSAGE 310

310:Phone number [D] must be in international format.
Application: Local or remote editing
Meaning: Telephone number in the D field must begin with international code.

MESSAGE 311

311:Phonebook storing error.
Application: Local or remote editing
Meaning: Unspecified parameter error storing a new entry.

MESSAGE 312

312:Unknown error.
Application: Local or remote editing
Meaning: Unspecified error related to Phonebooks.

MESSAGE 313

313:No operation performed.
Application: Local or remote editing
Meaning: Although the command seems to be correct no operation was performed.

MESSAGE 321

321:Invalid command.
Application: Remote AT command
Meaning: Remote AT command issued within SMS is not allowed.

MESSAGE 331

331:Supervisor group isn't empty.
Application: Local or remote editing
Meaning: First supervisor storing denied.

MESSAGE 332

332:Supervisor succesfully added.
Application: Local or remote editing
Meaning: First supervisor successfully stored.

MESSAGE 501

501:incoming SMS
Application: Trace event description
Meaning: An incoming SMS has been detected.

MESSAGE 510

510:first supervisor accepted
Application: Trace event description
Meaning: An SMS coming from the first supervisor has been successfully processed.

MESSAGE 511

511:remote editing
Application: Trace event description
Meaning: An incoming editing SMS from a supervisor has been detected.

MESSAGE 651

651:clip service enabled
Application: Trace event description
Meaning: An incoming SMS from a supervisor enabling the Clip feature has been detected, all incoming calls from recognized users will be served.

MESSAGE 652

652:clip service disabled
Application: Trace event description
Meaning: An incoming SMS from a supervisor disabling the Clip feature has been detected, all incoming calls will be rejected.

MESSAGE 701

701:List
Application: Trace event description
Meaning: An incoming SMS from a supervisor asking for Last calls list (SMS) has been detected.

MESSAGE 702

702:Pbook
Application: Trace event description
Meaning: An incoming SMS from a supervisor asking for Phonebook list (Email) has been detected.

MESSAGE 703

703:Pbook++
Application: Trace event description
Meaning: An incoming SMS from a supervisor asking for Phonebook list and Configuration (Email) has been detected.

MESSAGE 801

801:Remote clock setting
Application: Trace event description
Meaning: An incoming SMS from a supervisor setting the real time clock has been successfully processed.

MESSAGE 802

802:new setpoint accepted
Application: Trace event description
Meaning: An incoming SMS from a supervisor setting a new setpoint temperature has been successfully processed.

MESSAGE 821

821:+EEE
Application: Trace event description
Meaning: Short circuit detected on the temperature probe input.

MESSAGE 822

822:-EEE
Application: Trace event description
Meaning: Open circuit detected on the temperature probe input.

MESSAGE 901

901:mail error
Application: Trace event description
Meaning: Error issuing an Email.

MESSAGE 902

902:mail sent
Application: Trace event description
Meaning: Email successfully sent. [OLD DEVICES ONLY]

MESSAGE 905

950:Remote AT command
Application: Trace event description
Meaning: Incoming SMS from a supervisor embedding an AT command.

MESSAGE 951

951: Remote VER command
Application: Trace event description
Meaning: Incoming SMS asking for software revision.

C. FEATURE SYMBOLS

Graphical symbols could be used to identify a specific feature of devices.

	ACTIVATION ON INCOMING CALL FROM REGISTERED USERS
	ACTIVATION ON INCOMING SMS
	ALERTS ISSUED TO FAX MACHINES
	SIMPLE CALLS ALERTS
	SMS ALERTS
	EMAIL ALERTS AND REPORTS
	SERIAL COM PORT
	SCHEDULED EVENTS
	BACKUP BATTERY
	VOICE SINTHESYS

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