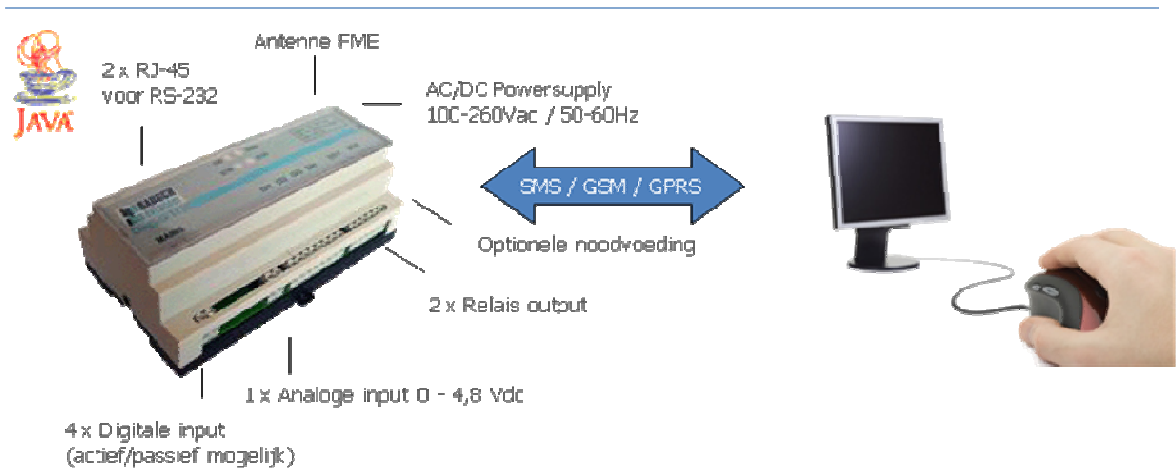
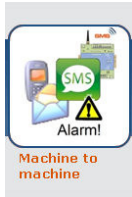


TC65i & DinBox M36 Software configuration guide

Professional SMS for your application



		ON	●	GSM		
		DTR	●	DCD		
DinBox M36		Mains: 85-265 Vac DI: 0-20Vdc or active DO: 1A max Left Serial Right Serial				
MAINS	AI	DI1	DI2	DI3	DI4	DO1 DO2
N L	+-	+-	+-	+-	+-	NO NC NO NC



Introduction

This embedded SMS application will enable you to fully implement professional SMS in your application. This enable you to control & have feedback from your application remotely.

Please refer to the DinBox M36 hardware description guide for full information how to connect your DinBox M36 device. This software is compatible with all Cinterion TC65i based hardware platforms.

The main communication protocol is sending & receiving SMS messages. Please contact Bausch Datacom for more information by sending your request to info@bausch.be or sales@bausch.be

Next to SMS messages the software has the ability to get the exact time & date information over the GPRS network by connecting to a public / private NTP server (Network Time Protocol) or by SMS.

Up to 8 different numbers can be assigned to inputs & outputs. Time driven operation is possible due to the integrated RTC (Real Time Clock). The inputs can trigger the sending of one ore more SMS message(s) when active and/or when deactivated. The outputs can be set by the reception of a predefined SMS message. The outputs can also inform you by SMS when remotely set of reset. Finally in & output can send a SMS when a certain activity time is achieved, example after 1000 min activity.

The software has the possibility to inform you of the correct functioning by sending a SMS on a predefined time cycle (I'm alive).

When using the DinBox M36 hardware the software application can inform you of the main power losses.

Finally we have different software & hardware solutions who can interact with the SMS software application. If you like to integrate Email to SMS / SMS to Email we advice the use of SMS Comfort <http://www.smscomfort.com> . SMS Comfort is a professional application who can be extended to distribute alarms by SMS & Email using the Alarm Manager. Please contact our service desk for more information on using professional SMS applications in real life application.

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Starting with the embedded SMS software on the Dinbox M36 / TC65i.

You have to insert the SIM card before powering-up the device. By default there is no PIN code used. A PIN code can be set in the main configuration menu.

Connect the serial program cable to the first serial port (left port when I/O are facing down). Use a terminal program (like HyperTerminal) & set the following baud rate 115200 8N1.

Do not forget to connect the GSM Antenna when powering-up.

Connect the mains to the device & power up the device.

By default the embedded software application will start automatically. (after approximately 20 seconds)

Note: if the software application is not starting automatically you can launch the application by initiating the following command in your terminal program `at^sjra=a:/m36.jad` followed by enter. Once the application starts it will create an automatic start-up configuration. When the device lose power the application will start automatically when powering-up.

General information:

The SMS application will include a message counter in every message. This counter will be increased with 1 every time a message is sent.



Note: (30) is the message counter.

All information show is RED are fixed values and can not be changed by the user. Values between ' ' are editable by the user.

When the application is starting up you will see the following status messages:

```

^SYSSTART

[20] -----
[20] startApp() m_run=1
[20] AT_Response.Init()
[20] ATZ m_status=7
[20] ATE1 m_status=8
[20] AT+CCLK? m_status=42
[2002/01/01 01:24:26] AT+CGMI m_status=24
[2002/01/01 01:24:26] AT+CGMM m_status=20
[2002/01/01 01:24:27] AT+CGSN m_status=30
[2002/01/01 01:24:27] AT+CGMR m_status=30
[2002/01/01 01:24:28] AT^SPIO=0 m_status=13
[2002/01/01 01:24:28] AT&V m_status=430
[2002/01/01 01:24:29] AT&S0 m_status=9
...
...
[2002/01/01 01:25:09] ///////////////////////////////////
[2002/01/01 01:25:09] // - m36 v2.05j
[2002/01/01 01:25:09] // - licence=9T6I0LFF06
[2002/01/01 01:25:09] // - CGMI=Cinterion
[2002/01/01 01:25:10] // - CGMM=TC65i
[2002/01/01 01:25:10] // - CGSN=353234021555006
[2002/01/01 01:25:10] // - LIST=4 maart 2010
[2002/01/01 01:25:10] // - CGMR=REVISION 01.100
[2002/01/01 01:25:10] // - SCID=8932007508012635653
[2002/01/01 01:25:11] // - CIMI=206012001881583
[2002/01/01 01:25:11] // - MSDN=
[2002/01/01 01:25:11] // - NDTR=
[2002/01/01 01:25:11] // - COPS=BEL PROXIMUS
[2002/01/01 01:25:11] // - CSCA=+32475161616
[2002/01/01 01:25:11] // - CCLK=02/01/01,01:25:11
[2002/01/01 01:25:12] // - m_force=96
[2002/01/01 01:25:12] ///////////////////////////////////
[2002/01/01 01:25:12] Thread[AT_Response_RUN,5] m_run=1
[2002/01/01 01:25:14] Thread[rs232_Thread,5] m_run=1
[2002/01/01 01:25:17] Thread[rs232_Thread,5] delay 10 seconds

Setup m36 v2.05j - (c) Softo b.v.b.a. - 9T6I0LFF06
> Press ENTER .....

```

After approximately 1 minute you will be asked to type the ENTER key to enter the configuration menu. Later you can access the configuration main menu by pressing the ESC key. The access to the main configuration menu can be protected by a password. By default there is no password protection.

The main configuration menu will appear:

```

+-----+
| M2M/GO SMS Alarm RTU v2.05j                MCS Copyright 2009 |
+-----+
|
| 1. ID name                                6. Keep alive
| 2. Number management                      7. Battery alarm
| 3. Date & Time                            8. Network & SIM
| 4. Input configuration                    9. Export & Clear
| 5. Output configuration
|
| F1=HELP                                     ESC=EXIT
|
+-----+

```

Note: navigation between the main menu & sub menus is done by pressing the number keys (1-9). The ESC key is used to go back to the previous menu.

Initiation of the ESC key in the main menu will terminate the configuration without saving the changes. To save the changes press the function key F4 (only available in the main menu). The function key F1 can be used to display the help window with more information. Pressing the ESC key will close the HELP menu.

Note: The configuration menu can always be accessed by pressing the ESC key. This is only possible when the start-up cycle is completely finished. (After approximately 2 minutes)

By pressing 1 you can access & configure the “ID name”. The “ID name” & “Location” will be included in every SMS message send by the software application. The use of “ID name” & “Location” is NOT mandatory.

```
+-----+
| ID Name                                     |
+-----+
| 1. ID name: MCS BeLux                      |
| 2. Location: Vilvoorde                    |
|                                           |
| 3. Secure: No                             |
| 4. RESTART module:                       |
|                                           |
| 5. Text startup: POWER-UP                 |
| 6. Used numbers: 1                       |
|                                           |
| F1=HELP                                  ESC=BACK |
+-----+
```

Option 3 is used to secure the configuration menu by use of a password. This password is the same as the SIM-pincode. (Fill-in the SIM pin under menu option 8 from the main configuration menu). **The default Pincode = 1111**

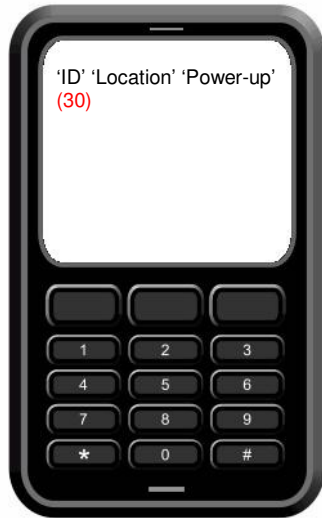
Option 4 is used to restart the complete software application. This option enable the user to restart the application without removing the main power. When 4 is pressed the application will ask for a PIN. Use the same pin code as specified under menu 8 from the main configuration menu)

Option 5 & 6 can be used to send a SMS message when the application is starting up. Under 5 you can define the text to send when starting up. By choosing 6 you can define the telephone numbers of the recipient(s).

This can be one or more short number(s) from the number management list or 1 complete int. telephone number)

Note: When using more than 1 number, use the “,” as delimiter. Example 1,5,8

When using this feature the following text format is send to the recipient(s).



When you are finished with this you can press the ESC key to return to the main menu.

When pressing 2 from the main menu the “Number Management” menu is displayed. Here you can define up to 8 numbers that can easily be used in the other configuration screens. You can refer to this predefined numbers by using the short number 1 to 9.

The use of the Numbered list is NOT mandatory. You can also specify later a complete number without referring to the short numbers of the Number Management.

```
+-----+
| Number Management |
+-----+
| 1. Number 1 +32473520951      5. Number 5 |
| 2. Number 2 +31612312312      6. Number 6 |
| 3. Number 3                    7. Number 7 |
| 4. Number 4                    8. Number 8 |
|                                     |
| F1=HELP                               ESC=BACK |
+-----+
```

>

Note: Always use the international number format (example for the Netherlands +316xxxxxxx)

When you are finished with this you can press the ESC key to return to the main menu.

By pressing 3 from the main menu the “Date & Time” menu is displayed. Here you can set manually the correct date, time & time zone. You can also define that the application sends a SMS to itself to define date & time. The software application is also able to connect to a NTP server by using the GPRS network. Please contact us for more information.

If you like to use the SMS date & time feature, you will need to fill-in lines 4 & 5. Option 4 enables you to enter the own mobile number of the used SIM card. Option 5 defines the time sequence in minutes to update time & date by SMS.

Date & Time is important when using time driven inputs or outputs. Also a good time & data stamp is more easy for debugging purposes

```
+-----+
| Date & Time |
+-----+
| Current UTC = Fri May 21 17:12:34 UTC 2010 |
| SummerTime = 1 |
| 1. Current Date: 10/05/21 |
| 2. Current Time: 17:12:35 |
| 3. TimeZone: 1 |
| 4. NTP server: |
| 5. Date & Time via SMS: |
| 6. Refresh: never - startup only |
| F1=HELP | ESC=BACK |
+-----+
>
```

Press the ESC key to go back to the main menu.

When pressing 4 from the main menu the “Input Configuration” menu is displayed. The DinBox M36 hardware supports 4 inputs. In the main “Input Configuration” menu you can configure each one separately.

```
+-----+
| Input Configuration |
+-----+
| 1. DI1   Current state = 0 |
| 2. DI2   Current state = 0 |
| 3. DI3   Current state = 0 |
| 4. DI4   Current state = 0 |
|                                     |
| F1=HELP                                     ESC=BACK |
+-----+
>
```

Note: The actual status is displayed in the Input Configuration. This status reflects the actual state of each input.

Select the desired INPUT by pressing 1 to 4. The following menu will be displayed:

```
+-----+
| Input 1 Configuration |
+-----+
| Current state = 0 |
| 1. Text slope L-H: INGN1H00G |
| 2. Text slope H-L: |
| 3. Slope delay: 5 seconds |
| 4. Confirmation text: Stop |
| 5. Resend delay: 1 minute |
| 6. Status by day/time: 15:40 |
| 7. Used numbers: 1 |
| |
| 8. Usage report: |
| 9. Used numbers: |
| |
| A. Active: |
| |
| F1=HELP                                     ESC=BACK |
+-----+
>
```

By pressing 1 or 2 you can define the text to send when the Input get active (option 1) of when the input is de-activated (option 2).

Option 3 defines the time in seconds that the input should be active before sending the SMS message.

By default the software application only sends the message once. By using option 4 & 5 you can enable the application to resend the message upon a confirmation message is received.

Option 4 defines the text of the received SMS message to confirm the input change. Once this message is received the application will no longer resend the input change message.

Option 5 defines resend delay period in minutes.

The software application can inform the user automatically of the actual state of all input. This can be configured by using option 6. You can enter the time of the day when the information message should be send or you can define a period (example every 10 hours)

Option 7 is a mandatory field when using the selected input. You can define the recipient number using the following possibilities:

- Enter 1 complete number in International format (example +32 4xx xxx xxx) or
- Chose up to 8 numbers defined in the menu "Number Management" (example 1,5,6)

Option 8 & 9 give you the possibility to send a SMS message when a defined number of minutes of activity is achieved. For example is you fill-in 1000 minutes the application will send a SMS message when the input is active for 1000 minutes. A next message will be send when the input is active for 2000 minutes, 3000, 4000,

The A option can be used to define the time period that the input should be taken in consideration. For example only active after working hours from 18:00 07:00

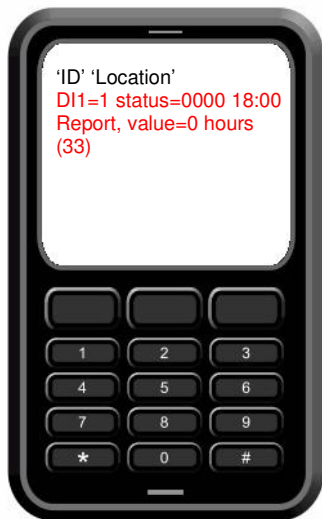
Received alarm message format



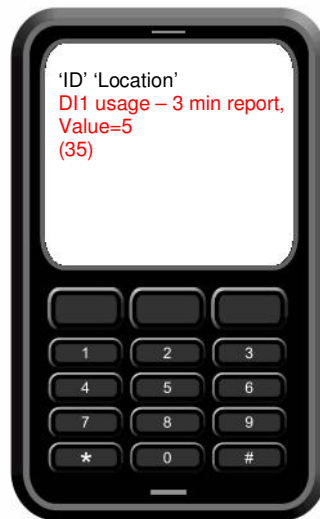
Resend alarm message format



Received Status report format



Usage report message format



When finished you can press the ESC to configure an other input. Pressing the ESC key twice will display the main menu.

By pressing the option 5 from the main configuration menu you can configure the outputs. When using the DinBox M36 hardware you can configure the 2 outputs.

```
+-----+
| Output Configuration                               |
+-----+
| 1. D01    Current state = 0                      |
| 2. D02    Current state = 0                      |
|                                                  |
| F1=HELP                                       ESC=BACK |
+-----+
>
```

Press 1 or 2 to configure the desired output. The following screen will be displayed:

```
+-----+
| Output 1 Configuration                             |
+-----+
| Current state = 0                                 |
| 1. Initial state: 0                              |
| 2. SET text: on                                  |
| 3. RESET text: off                              |
| 4. Confirmation text:                           |
| 5. Time driven operation: 5,5,5,5               |
| 6. Used number(s): 1                            |
|                                                  |
| 8. Usage report:                                 |
| 9. Used number(s):                               |
| A. Active:                                       |
|                                                  |
| F1=HELP                                       ESC=BACK |
+-----+
> _
```

Option 1 sets the initial state of the output. Entering 0 means open (NO), entering 1 means closed (NC). When using option 2 you can enter the text of the SMS message that will SET the output. Option 3 enables you to enter the text of the received SMS message to RESET the output.

Note: If you are using the M36 DinBox hardware the outputs are relays. Be careful only to use the active state when necessary & for the smallest possible period. This will extend the life time of the relays.

When setting or resetting the output by SMS the software application can send a SMS message back as a confirmation message. This feature enables you to certify the good operation when driving outputs by SMS. This feature can be enabled by entering the text to send under option 4. The used telephone number can be configured under option 6. (up to 8 number can get a confirmation SMS by using the short code defined under the "Number Management" menu).

Option 5 will enable you to set a specific pattern "in seconds" that the output will follow when the SET message is received (defined under 2) . For special application it is also possible to enter a text string like SOS. This text will drive the output in a MORSE pattern.

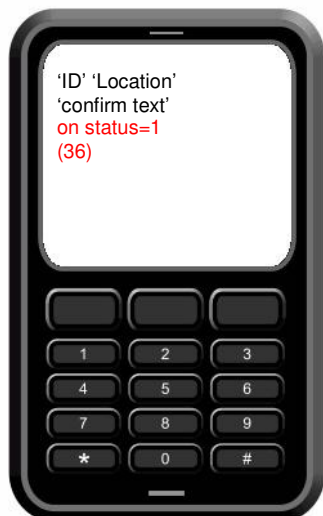
Example: setting the option 5 to "5,10,5,2" will create a output pulse of 5 sec high, 10 seconds low, 5 second high, 2 seconds low, 5 seconds high, 10 seconds low, Until the Reset message is received (defined under option 3)

For applications where you would like to know the usage of the output it is possible to receive a SMS message with this information. You can define the period in minutes that this message will be send by using option 8. (example entering 20160 will send you a SMS every 2 weeks)

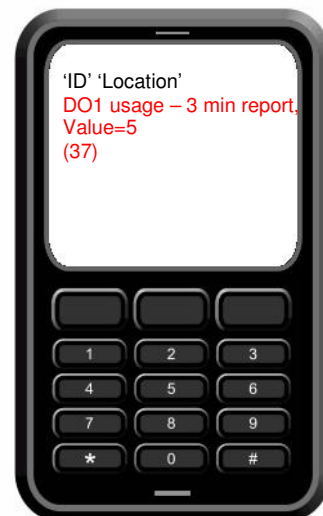
Option 9 defines the number to be used for this information message.

When finished press the ESC key until the main menu is displayed.

Output confirmation SMS



Output usage SMS



When setting outputs you can use additional setting in the SMS message.

Examples:

Sending "ON1" will activate the output

Sending "ON1 5s" will activate the output for 5 seconds

Sending "ON1 5w" will activate the output for 5 minutes

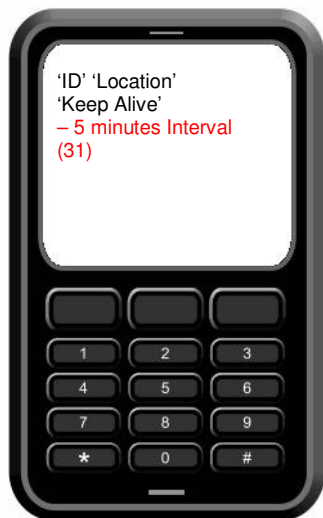
Sending "ON1 5h" will activate the output for 5 hours

By pressing 6 (option 6) from the main configuration menu you can configure the Keep alive function. When this function is used the software application will send a predefined SMS message to 1 specific number or to up to 8 numbers when using the short code from the “Number Management” menu.

```
+-----+
| Keep Alive                                     |
+-----+
| 1. Time interval: 1 day                       |
| 2. Used number(s): 1                         |
|                                              |
| 3. Text: Hallo                               |
|                                              |
| F1=HELP                                     |
|                                             ESC=BACK |
+-----+
> _
```

Option 1 sets the delay in minutes to send the Keep Alive messages. (example entering 1440 will send every day a Keep Alive SMS message)

Option 2 defines the number (+33 6xxx xxxx) or up to 8 numbers from the “Number Management” menu (example 2,6,7)



Press the ESC key when you are finished with the Keep Alive menu to return to the main menu.

By pressing 7, option 7 from the main menu you can configure special settings for battery operate applications. The software application can send a SMS message when the hardware is working on batteries. You can be informed when the mains fails after certain parameters are reached.

The following screen will be displayed:

```
+-----+
| Battery Alarm |
+-----+
| Current CHARGING = 0
| Current CAPACITY = 0
| Current VOLTAGE = 426
|
| 1. On battery:
| 2. Delay OR Capacity:
| 3. Charging events:
| 4. Used number(s):
|
| 5. Power saving mode: 5 minutes
|
| F1=HELP                               ESC=BACK |
+-----+
```

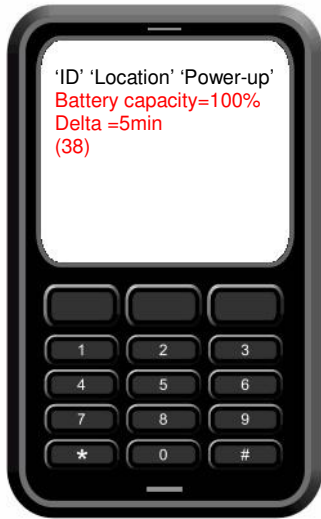
> _

The first 3 lines are current information lines & gives you information on the CHARGING state, the battery CAPACITY and the battery VOLTAGE.

Option 1 enables you to set the text that will be included in the send SMS message.

With option 2 you can specify when the SMS message has to be send. This can be a value from 1 up to 60 minutes. When main power fails the application will wait this time before sending the message. You can also specify a percentage (starting at 61 up to 100). When the battery capacity reaches this value the SMS message is send.

Option 3 defines additional battery alarm by SMS. You can chose one ore more options (comma separated) : 2=charging 3=charged 4=error 5=failure . Be careful to use option 2, the application will send every minute an alarm SMS when the battery is charging.



Example of a battery alarm SMS

By pressing 8, option 8 from the main menu. You can access the “Network & SIM” menu.

The first 5 lines are information lines.

By pressing 1 you can set the mobile operator code. When entered the SIM card will only lock on the specific operator. Roaming is not possible anymore. Please contact our service desk for more information.

By pressing 2 you can set the SIM card pin code.

```
| Network & SIM                                     online |
+-----+-----+
| Current MSDN =
| Current CIMI = 206012202317536
| Current OPERATOR = BEL PROXIMUS
| Current CSCA = +32475161616
| Current network coverage = 96%
|
| 1. Force mobile network by NUMERIC network code:
| 2. Set SIM card PIN code: ****
|
| 3. DB65 violation level: 0
| 4. Check interval: 1 day
| 5. Used number(s):
|
| 6. SMS check interval: 8 seconds
|
| 7. GPRS Setup
|
| F1=HELP                                           ESC=BACK |
+-----+-----+
```

For special mobile applications you have the ability to detect movement of the equipment. The user will be informed by SMS when the software application detects complete different GSM Cells. With this setting you will be able to detect unappreciated relocations of equipment.

Option 3 sets the violation level: 0=none 1=static 2=dynamic

Option 4 sets the interval in minutes (default=1440)

Option 5 sets the number that will receive the SMS message.

This feature allows the module to monitor itself against the connected network. This means that on regular basis, it verifies the cells where it is connected to, and just like a watchdog, compares it to the previous value. It is not exact but gives an indication if the module is moved. The number in the VIOLATION message is the cell id of the network to which the module is connected to.

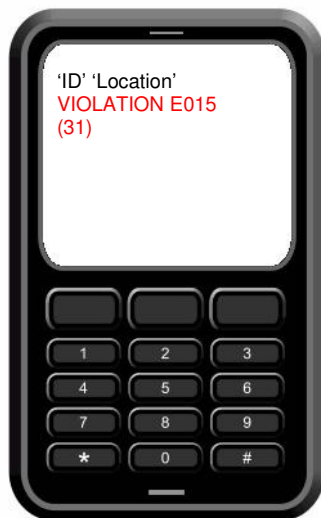
0=none: this means that no network monitoring is active.

1=static: this means that the network cell is stored only once. If the module detects that it is connected to another cell, it has been moved (or stolen) and generates a VIOLATION message to the used numbers as specified in 5. The new cell value is not stored, so it acts like a tracking device, without knowing the position, until it detects the original cell. The object is moving outside it's original area.
2=dynamic: this is the recommended value. This acts the same way as described in 1, but now the new cell becomes the stored value. This mode can be compared as a dynamic geofence. The object is moved to another location.

Important note: this feature does not support a geographical location mechanism.
Example: Suppose you want to use the module as a monitoring device, e.g. a pump installation. When the violation message fires, you can take the conclusion that the location where the pump is supposed to do it's job, is no longer monitored against e.g. a maximum water level.

Of course, this feature is only useful is the module is equipped with a backup battery, depending the environment and security level you need. Please contact our support in case a GPS device is needed to transform the module into a real tracking device.

Example of an access violation message



When pressing 7 you can setup the GPRS parameters for NTP time retrieval.

```
+-----+
| Network & SIM - GPRS                                     online |
+-----+
| 1. bearer type: gprs                                     |
| 2. access point: internet                               |
| 3.             dns:                                     |
| 4.             username:                                |
| 5.             password:                               |
| F1=HELP                                               ESC=BACK |
+-----+
> _
```

By pressing 9, option 9 in the main menu give you access to the debug menu.

This menu gives you the possibility to export (dump) different loggings & histories. Prepare a text capture session to save the content before starting the dump.

```
+-----+
| Export & Clear logging or history |
+-----+
|
| Current ID name =
| Current Location =
| Current Maximal size = 2x64Kb
|
| SMS counter REC = 5
|                  SND = 8
|
| 1. dump DB65 logging           5. clear DB65 logging
| 2. dump SMS history           6. clear SMS history
| 3. dump Alarm history         7. clear Alarm history
|
| 9. dump DB65 settings
|
| F1=HELP                       ESC=BACK
+-----+
> _
```

The SMS counter is showing the number of send & received SMS messages.

Bausch Datacom NV/SA contact information:

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