GSM ISDN Gateway

Link Gate ISDN

In blue, only on 6.5 version.

Since January 05 OGM & SMS will be bundle together (All in one option).

For easier use, pleased deactivate the PIN code of your SIM card.

User manual v2.0 rev 2.0

Table of content

1. Specifications of ISDN Link Gate ISDN

Note:
ISDN 1 and 2 have same basic features, the difference is that ISDN 2 have 2 module instead ISDN 1 have only 1 GSM module.

1.1 Product overview

LINK GATE ISDN is a Gateway with 1 or 2 GSM modules (Siemens TC 35i)

LINK GATE ISDN connected to your PABX, will reduce your phone bills.

The gateway is a metallic box, induding the following connections and signalizations

- 1 power supply 230V / 50Hz AC/DC.
- 1 RJ 45 for PABX connection.
- 1 RJ 45 for synchronization connection.
- 1 or 2 mini fme connections for antennas
- 1 or 2 SIM card holder
- Leds for indications of use.

1.2 Specifications

- Connection to the exchange through ISDN S0 interface with DSS1 signaling in NT mode
- POINT TO POINT or POINT TO MULTIPOINT exchange S0 interface
- Connection to DTMF extension line through direct dialing
- Connection directly to 2 operators or determined lines up called SIM card
- Connection to the 2 operators after a time period elapse (adjustable) to select an extension line
- Transfer of the number of the calling subscriber in the exchange (CLIP)
- Limitation of outgoing calls in GSM network
- Limitation of incoming calls from GSM network
- Priority connection through either the 1st or the 2nd GSM module (LCR)
- Switchable automatic channels changing
- Smart Call back – automatic incoming calls routing up CLIP
- Volume setting in both directions separately for each GSM module
- Setting own time rate by 1 second or only in case of establishing connection
- Selection of the GSM service provider separately for each GSM module
- OGM module recordable message from PC (MP3, Wav)
- SIM card protection using PIN
- Detailed gate parameters setting from PC through a program for Windows 3.1/95/98/2000/XP
- Power supply 9-15 V DC or 8-12 V AC

Precaution for synchronization

Some PABX having several ISDN lines which are not able to ensure synchronization on the various lines with a simple configuration.

The marks of PABX concerned known to date are: Alcatel, Ericsson and Siemens.

1.3 Link Gate Router

The gate is provided with ISDN input. The cable leading from this input must be connected to the former ISDN line (exchange line). The other connector (output ISDN line) is used as a standard ISDN line (connection to the exchange).
In this way, the user does not lose the former IDSN line. After proper LCR setting, the selected calls are routed in GSM networks; the other calls pass further in the former ISDN line. The incoming calls are merged from both directions in the ISDN output.

1.4 Optional modules

Some modules are now available for the GSM Link Gate ISDN:

a) OGM module

- Recording available with the software provide or through an ISDN phone.
- 10 seconds recording (see p 16)

b) . SMS Server

Send and received SMS through POP mail software. (For more details see SMS server manual. (p 21)

c) Remote configuration

- Remote control of the Gateway, with a SIM card having data option.

1.5 Package content

ISDN 1	ISDN 2
1 gateway Link Gate ISDN 1	1 gateway Linkgate ISDN 2
1 magnetic antenna	2 magnetic antennas
1 SIM card holder	2 SIM card holders
1 power supply	1 power supply
1 installation CD	1 installation CD
1 RS 232 cable	1 RS 232 cable
1 RJ 45 / RJ 45 cable for synchronization	1 RJ 45 / RJ 45 cable for synchronization
1 T for RJ 45	1 T for RJ 45

2. Installation of the Link Gate ISDN

In this chapter we will see how to install the gateway in your telephone installation.

2.1 Installation step by step, for SIM cards and cables

a. Insert SIM card

Carefull with PIN code

Check as a preliminary if the SIM cards are protected by PIN code, if such is the case, you can use the software provided to program the PIN codes. (See 3.1.1. page 12) before inserting the cards.

With a pencil or similar push the yellow button on the card holder to extract it, then install on the holder the card as bellow and replace it.

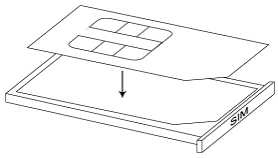


Figure 1

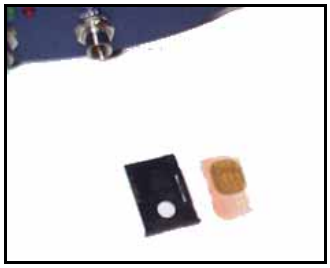


Figure 2

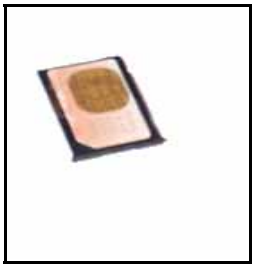


Figure 3

Figure 4

b. Connection of antennas

Figure 5

c. Connection of Bri to the Link Gate ISDN

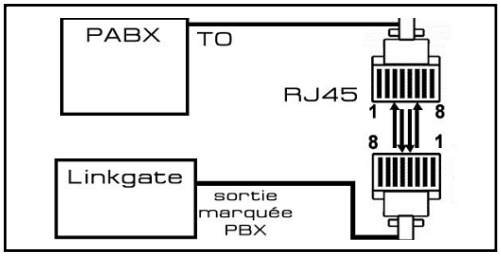
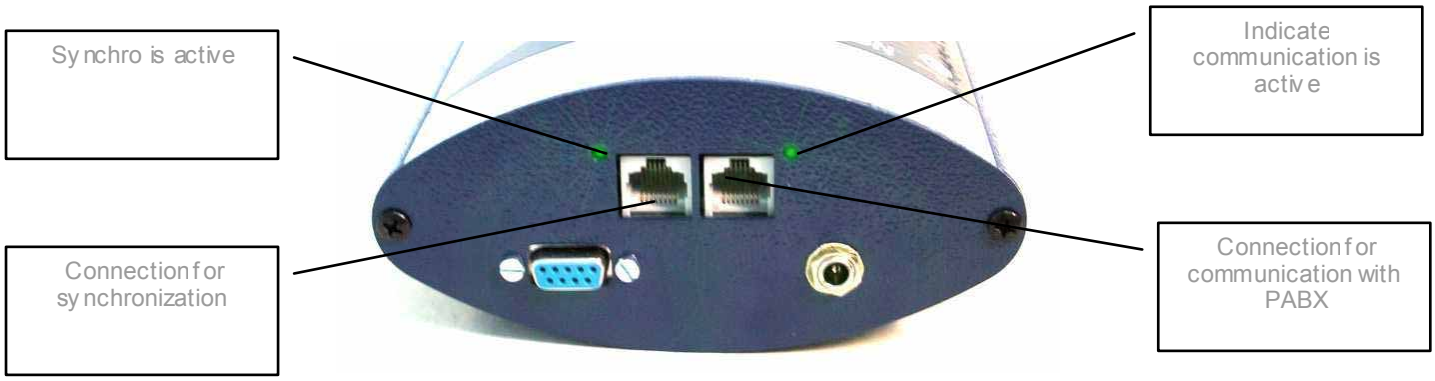


Figure 6

Some PBX don't deliver Synch you can get it fro the land line.

PBX needing synchronisation (no exhaustive list):
Alcatel – Ericsson - Siemens



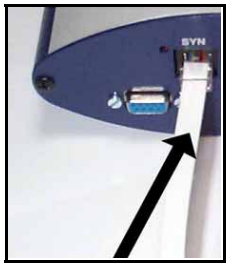


Figure 1

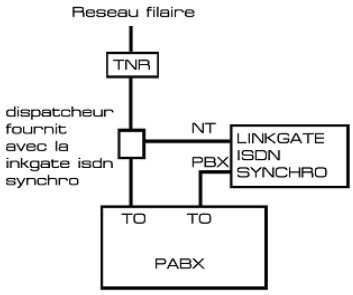


Figure 2

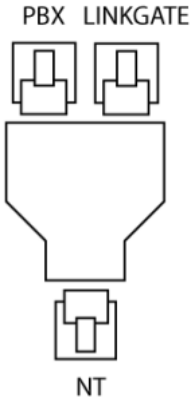


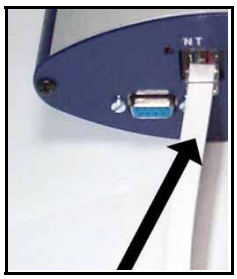
Figure 3

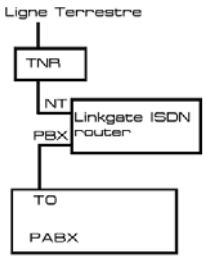
How to use the T provide in the package.

CAUTION (for synchronization)

You can get synchronization from SO port of your PBX.

e. Connection router version





f. Connection of the Link Gate w ith a PBX

g. Power supply connection

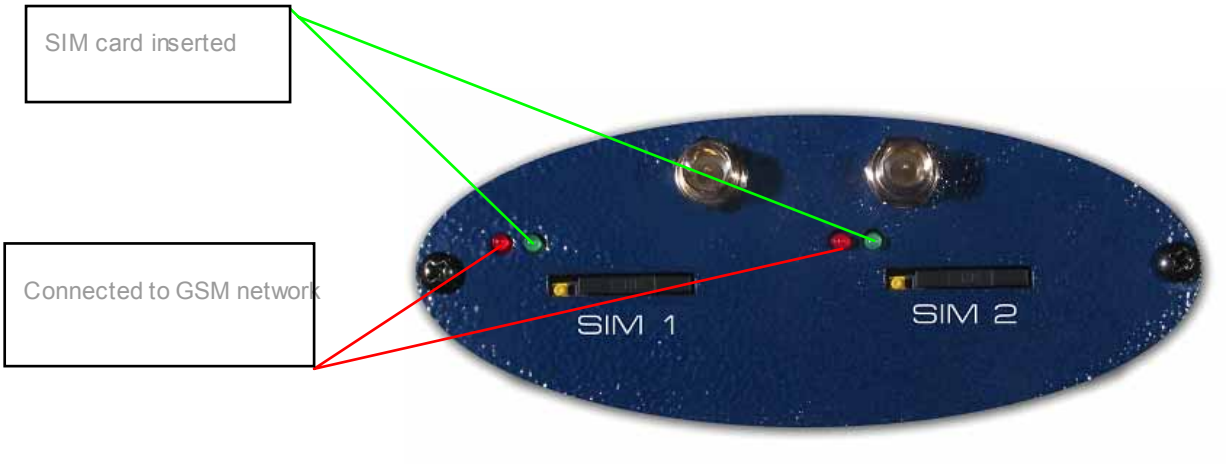
3. Initialisation of the Gateway

3.1 Indications of the leds

a. LEDs up of the gateway

Note :
If you insert 2 SIM cards they will be activated in the following order , 1 then 2.

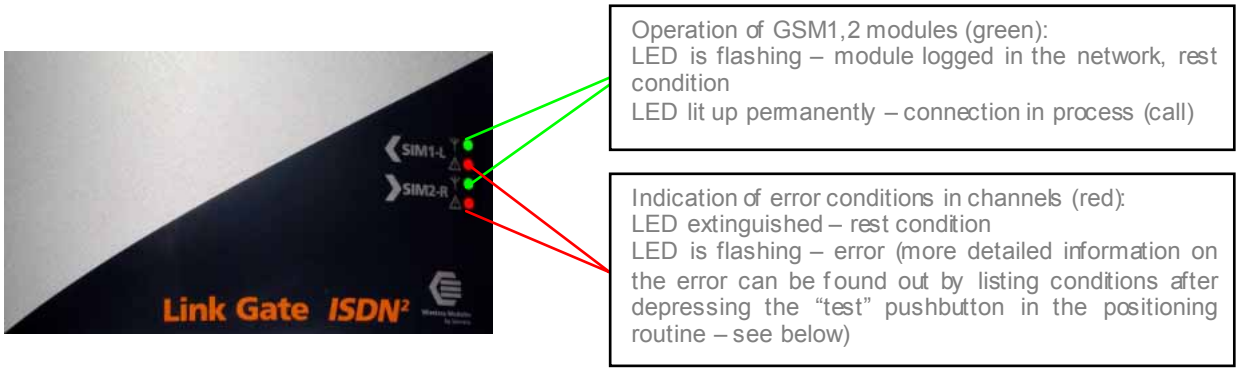
Near each card holder you'll find a red and green LED :



- Green LED indicates SIM card inserted.
- Red LED (flashing slowly) indicates connection to the GSM network.
- Green LED must be always solid ON.
- Red LED will flash slowly in STD by mode and quickly when line is busy.

b. Leds on the front

Si tous fonctionnent correctement, la ou les DEL vertes sont allumées et clignote de manière régulière sur la face avant du Linkgate ISDN. En communication celle-ci devient fixe.



Signalisation	Signification
❑ Green LED flashing	Gateway is in std by mode
❑ Green LED solid ON	Gateway is in communication
❑ Red LED is ON	There is a problem on the gateway

When a red LED flashing on the front face, then there is a problem with the gateway. It is possible to create a file which will contain all information making it possible to diagnose the problem, to generate this file, click on the button "test" of the GSM set panel.
The program will open in a new window all information relating to the gateway. It is possible to copy to stick and to print this test.

3.2 Possible problems when putting into operation

Here bellow find the current .

Problem	Solution
No LED are lit up	Power supply error. Check connection to the mains and connection of the mains' adapter to the gate
Quick "logging in" flashing of the red LED has not occurred.	The module is not logged in the network: ❑ Defective SIM card (or the card is incorrectly inserted in its compartment) ❑ Obsolete 5V SIM card (the module supports cards for 3V and lower voltage); ❑ Logging in GSM with PIN has been set and the PIN has not been set in the gate by the positioning routine; ❑ GSM signal is too weak.
The device is operating, however, the call contains a humming sound.	Unsuitable positioning of the aerial with respect to any of the analogue telephone lines or an analogue telephone apparatus into which GSM transmission is induced (identical as in case of a car radio). It is necessary to test mutual position or totally relocate it.
The device is operating, however, an "echo" can be heard in the call.	Echo is automatically eliminated by electronic means in the gate. If you hear a beep despite this measure, it could be caused by: ❑ Too improper impedance adaptation of the BTS channel to which either you or your counterpart are connected; ❑ Mobile telephone, which you are calling (some older types, some types of protective cases).

4. Link Gate ISDN configuration

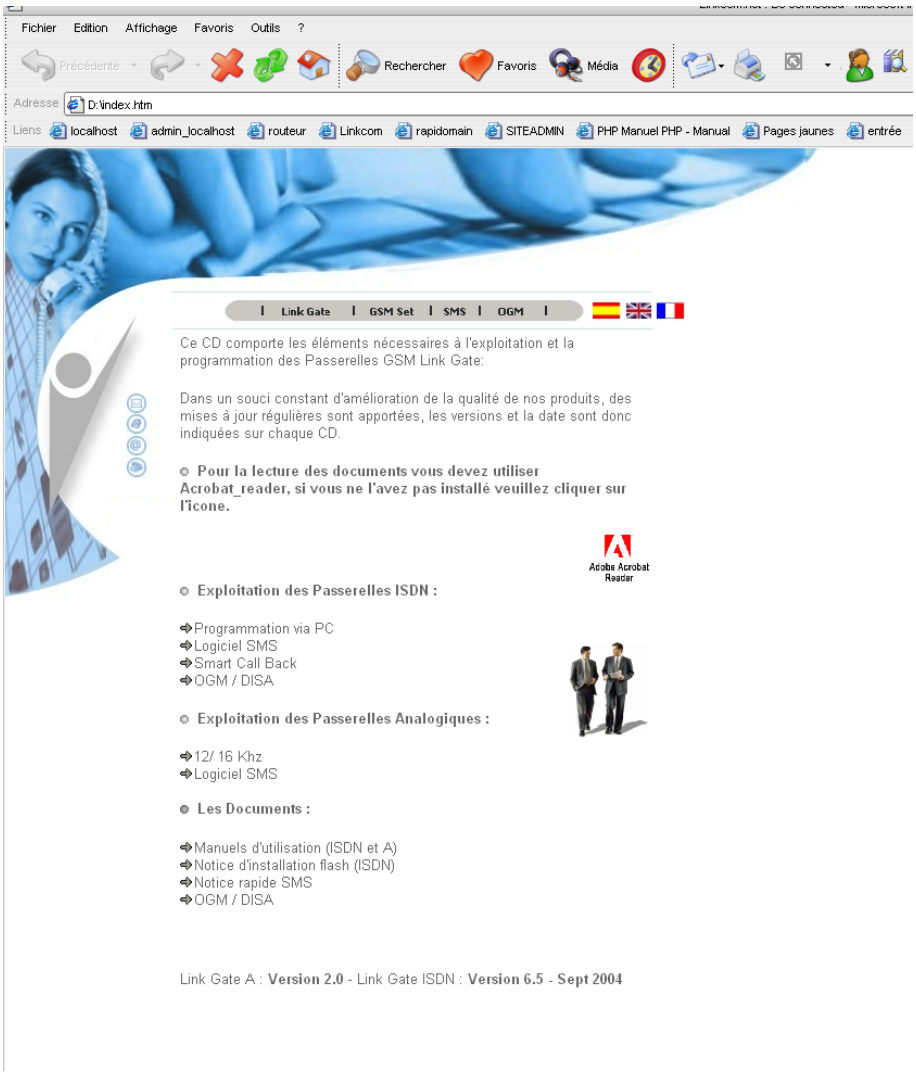
The routine is intended for setting all the necessary gate parameters and detecting error conditions. The parameters are being set as well as the error conditions can be saved for later utilization. It is intended for Windows 3.1 to 2000 systems.

Note :
LINK GATE ISDN is configured by default without baring call for the numbers with 10 digits, default password, and does not compose PIN code to starting. Each time you safeguard new parameters in Linkgate ISDN, that will start again automatically.

Pleased check connection with serial cable, then install the GSMSet software.

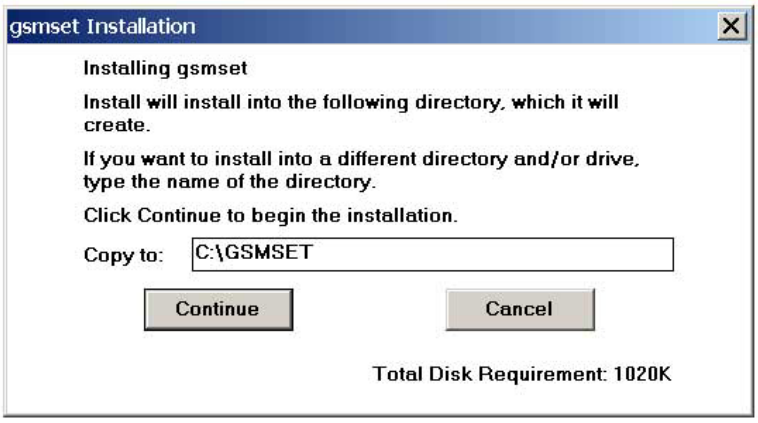
4.1 Installation of « GsmSET »

GSMSet software is on the CD provide in the package, when you insert the CD you see the window above, you can choose also your language.



If you can't see this window click on the « autorun» icone:

Click on « Installing GSMSET », you'll have this window :



Click on 'Continue'. The software will be installed on the GSMSet directory.

4.2 Start GSM Set

Note :
Check if serial cable is connected to com 1 or 2 of your computer.

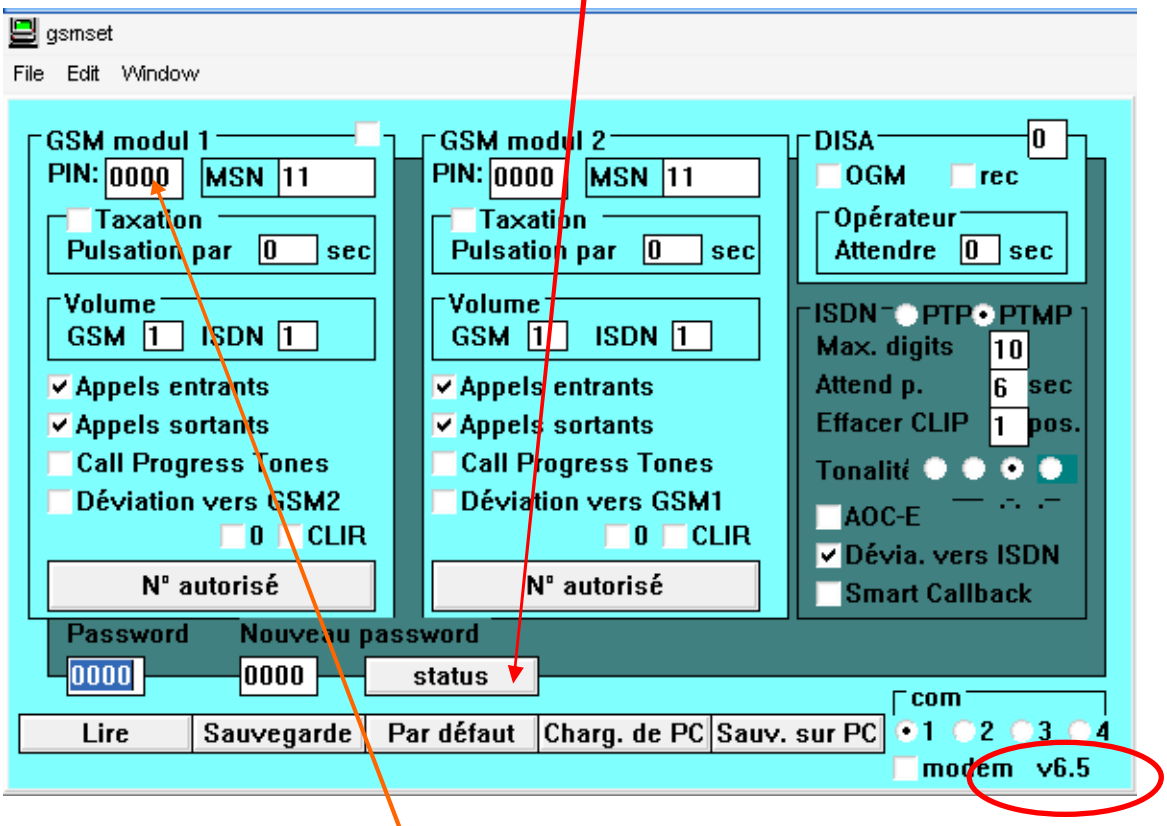
Start the program from the shortcut on your deck or from start/ program/ gsmset.

Link Gate ISDN use a protection code, default is 0000..
We recomend, if u are the PBX administrator to change it in the „New password" put, then click on „SAVE".

Note :
A wrong connection will display the following message « Wrong password »

Note :
In case of problem or password lost see appendix 5

To obtain the state of the Gateway to click it on the button "statut". All information concerning the gateway is posted with the screen:Caution! version of the software and not of the footbridge, to press on statute for version of the gateway.



4.3 Setting of the LINK GATE ISDN

During data transfer from or in the gate, the corresponding button will always “turn grey” and the colour indicators in the button will indicate the type of the transfer (yellow for data send, green for data receive).
If any error occurs during transfer or the access password does not work, the program will react with an error message.
Do not forget to turn the appropriate com1 or com4 on!

Configure the GSM modules

Configuration of module 1 and 2 is the same, pleased verify wish one you configure.

a. Set the PIN Code

If your SIM card have a PIN code indicate it in the PIN

b. Programming MSN of the gateway

In MSN pleased indicate the extention where the call be route if necessary

.

c. Set the impulsion for taxation

Generate a taxe impulsion beetween 0 to 99 seconds.

d. Setting of outgoing (GSM) et incoming(ISDN) volume

The "Volume" field allows adjusting call volume in both the outgoing direction ("GSM" field) and the incoming direction ("ISDN" field). Volume in the outgoing direction can be set in degrees 1 to 7 while in the incoming direction from 1 to 4.

e. Call baring

Permission of outgoing or incoming calls

f. Redirection to GSM module

In case of marking the"Re-route in GSM2"(GSM1) field, "overflow" of the enabled directions (selection see below) in the adjacent channel is allowed. If the channel with the enabled direction is already busy calling, the gate will not refuse the call, but it will utilize the other channel (even if the direction is not on the list of enabled directions for this channel). .

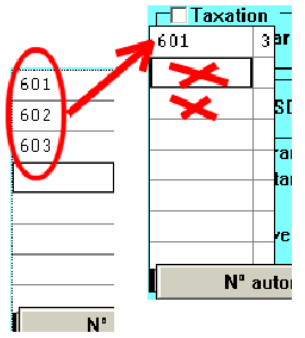
g. Baring Call Configuration

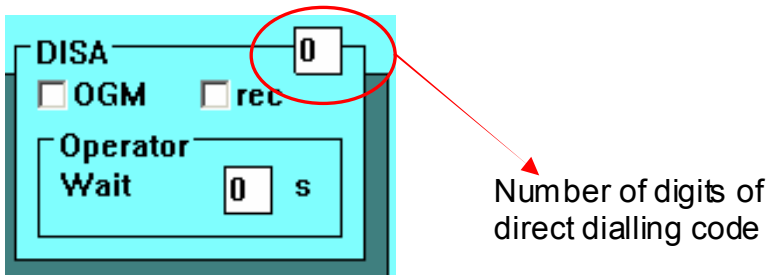
On each module you can allow incoming and / or outgoing calls.

Up to 12 blocks of enabled directions can be selected in each GSM module. The table of the enabled directions is accessible after clicking on the "Enabled directions" button. If the table is not filled in, all directions are enabled. 1- up to 8-digit numbers can be written in the first column of the table. The program substitutes any digits instead of not filled in digits from the right which checking the enabled direction. This means, instead of writing the numbers 601,602,…609, it is possible to write only 60. Listing of enabled directions in groups is new in this program version. If the operator has three successive numbers differing from each other only by the last digit, this direction can be written as a group on a single line: the first column contains up to 8-digit number of the first direction ("from") as in the case mentioned above and the last digit of the last direction is stored in the second column (i.e. the last digit of "to") – see Fig. A group may be created only within the range of one order of the last position – i.e. from 0 to 9! By proper filling in the tables of both modules (one module e.g. T-Mobile code, the other module Orange code), it is possible to achieve automatic re-routing of the outgoing call in the module allowing cheaper calling through the given operator (LCR).

Caution! The values are loaded in the table only after pressing the Enter button, marking it with cursor or by mouse clicking on another field of the table!

After clicking on the "Enabled directions" button, the table will be verified before closing. The operator is notified of wrong numbers or duplicate selection of values. **In order the verified data can be sent to the gate from the table, close the tables before transfer! If they remain open, they will be closed automatically and a check of data will be performed before transfer. In the event of errors in the tables, transfer will be blocked. After clearing the errors, transfer has to be repeated.**





4.4. Direct dialling code selection

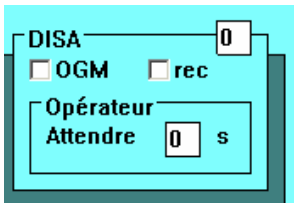
The incoming calls can be handled in two ways:
All calls can be automatically connected to a selected extension in the connected exchange

4.4.1. DISA

Connection takes place in accordance with the selected MSNs (DDI) or direct dialling numbers of the operator separately for each channel. In this way, it is even possible to distinguish the calls incoming to individual telephone numbers of the GSM channels of the gate – the calls incoming to the telephone number of the first channel will be connected to the direct dialling code 11, incoming calls to the number of the other channel e.g. to the direct dialling code 12.
If a number of digits in the direct dialling code are being set, the number will be higher than zero (max. 4 –
Caution: the number should correspond with the number of digits of the direct dialling code of the exchange and selected MSNs or DDIs of individual GSM modules!),
the callers may themselves dial directly using tone selection by preset number of digits to the required extension. The automatic operator waits for a pre-selected number of seconds for direct dialling code selection. If it is not selected, the pre-selected number of the operator (according to a channel the call is incoming from) is dialled again.

4.5. Recording Outgoing message (OGM) Option

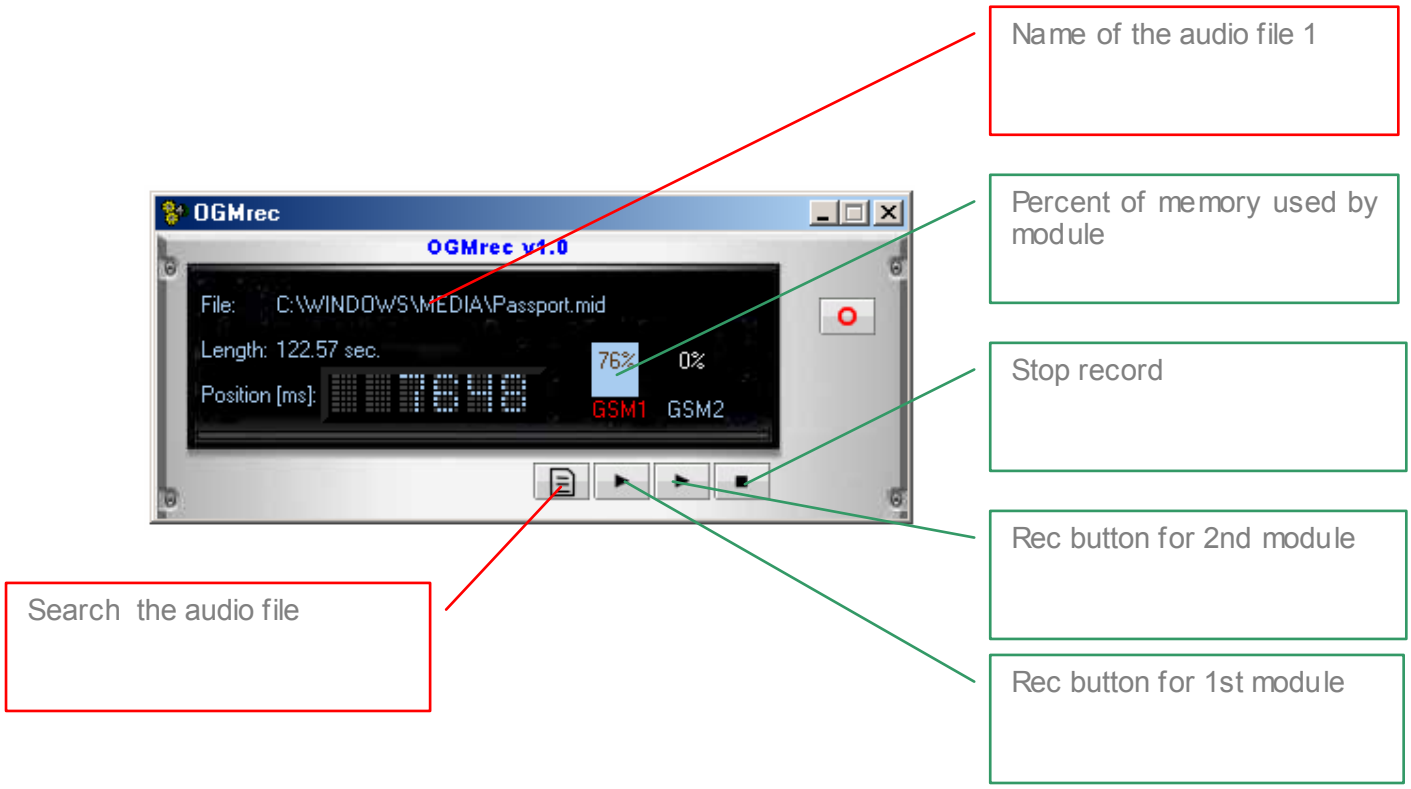
You can choose to dial directly an internal phone (DISA). You can leave the messsage to invite the caller to compose an internal phone number or to indicate that he will be route to operator.This is useful to guide the caller.

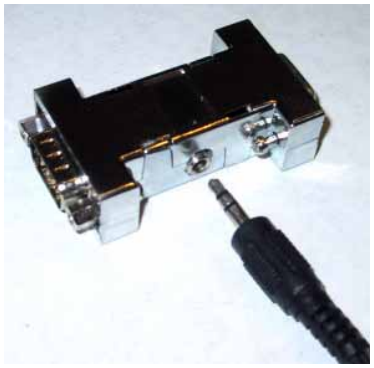


4.5.1. Recording through an internal phone

The gate can be provided additionally with a board with a digital recorder of “messages” for individual GSM channels. When collecting an incoming call through direct dialling, these messages are always replayed. If the “rec” field has been checked, 2 extensions accessible from a number in GSM1 module are added in the system: message for GSM1 with the number 1 and a message for GSM2 with the number 2. After establishing connection with the number for the GSM1 module dialling the corresponding direct dialling code (*1 or *2), a short tone will sound – alerting to start of recording. After message recording (max. 10 sec.), the record is terminated by hanging up.
Caution! You must select a 2-digit direct dialling code!

4.5.2. Record with OGMRec software and « serial-jack » adaptor





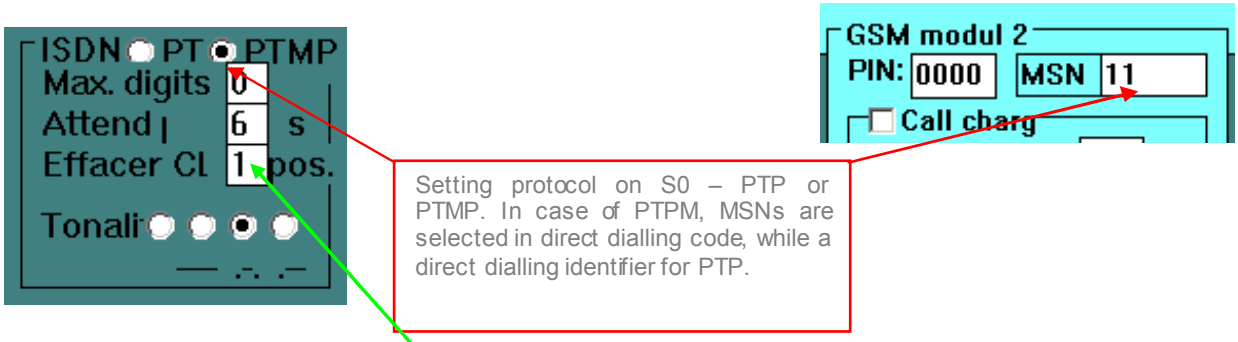
4.5.3. Benefits of the software

The quality will be better than through a normal phone, and also it will be easier to mix voice and music before recording it on the module.

4.6 ISDN parameters selection

Point to Point (PPP) & Point to Multipoint (PTMP)

The telephones connected to the GSM gate mostly do not include a pushbutton for establishing connection by the dialled number as GSM telephones. This “defect” is by-passed by selecting a fixed number of digits after which sending of the dialled number (max. digits parameter here) takes place in case of GSM gates. Sending the number if another digit is not selected within the preset time (waiting parameter here) period is another way. Of course, both parameters can be combined in a suitable way. The gate supports transfer of CLIP from the GSM network in ISDN, i.e. to a telephone connected to an extension (if the device allows it). Here it is advantageous to use the parameter for deleting the initial digits from CLIP (e.g. deleting +42 in order not to “confuse” LCR exchanges when calling back to the displayed number).



The second way is the time elapsed between dialing 2 numbers, when the time is too long the gateway will dialed the number.

Setting a type of dialling tone with which the gate is signalled:

- No tone (silence)
- Continuous tone 440 HZ (default)
- Morses R (preset)
- Morses A

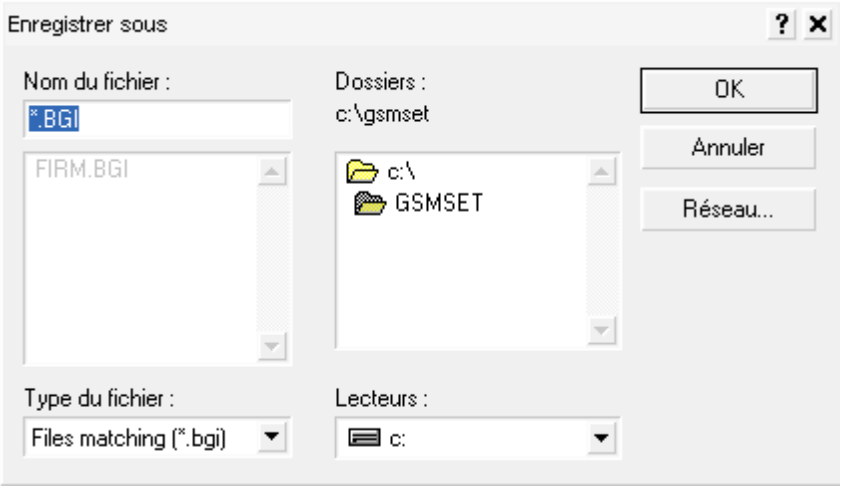
The best way in numerous configurations in T0 is PTMP instead S0.

- PTP or PTMP : Point to point or point to multipoint
- Max digit: Numbers dialled before the gateway sends the call without wait.
- Wait: How many seconds the gateway will wait before sending the call if the dialled numbers don't have the size preset in « max digits ».
- Clear: The gateway support CLIP from GSM to ISDN. You can see incoming call numbers on internal phones. (if PBX support this feature). You can erase first digits of numbers, for example: clear +33 – country code). Most PBX doesn't like + (ex +336…) so is better to put 1 to eliminate it.

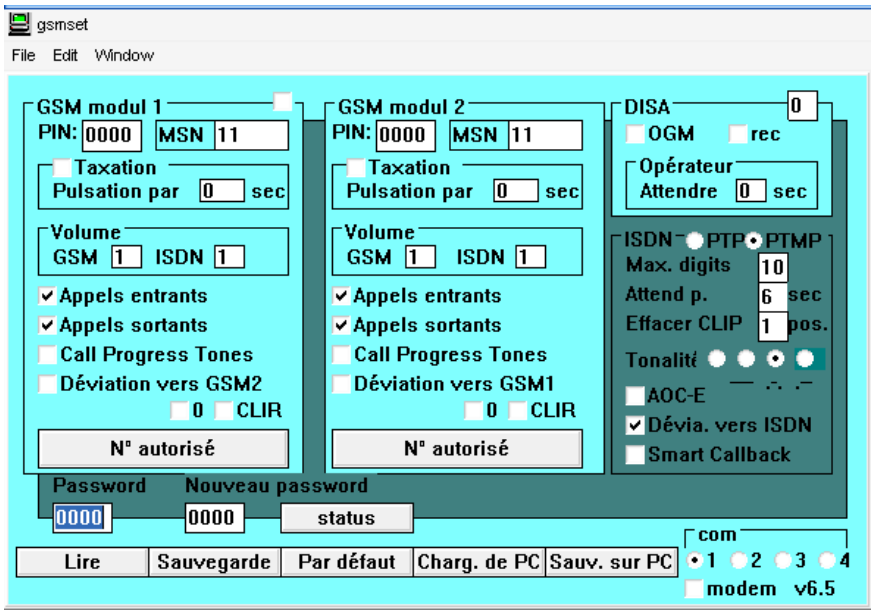
-Route to ISDN (router) : Route a call to ISDN when busy.(Only on "router" version)

4.7 Save and restore parameters.

You can easily save and restore your values on computer and recall them each time you need.
To save all new values, click on „SAVE TO PC"



File will be save at *.BGI format



Find a file where to save your actual configuration
To restore confiuration click on «Load from PC » chosse the file, click Ok then click on „save, the gateway will accept the new configuration.

4.8 Remote configuration module

The gate can be additionally provided with a board allowing identical work at gate configuration as through the RS-232 cable in a remote way through a modem. Enabled data calling for the GSM1 module and a modem connected to PC in which the GSMset program of the version 5 and higher is running are the necessary conditions.

Requirements for the modem:
GSM, ISDN or modem for analogue commutated line connected to COM1 or COM2 (it can be even a virtual one formed through USB).
Auto-bauding or fixed communication rate set to 9,600 Bd.

Potential other requirements for modem setting given by the communication network connected that are usually to be set in the initialising chain have to be located in the initialising chain in the national configuration file gsmset.cfg in the directory gsmset. The chain is added behind the command ATE0 (echo switching off):
Inimodem="ATE0"
E.g. inimodem="ATE0X3" to switch off "dial tone" detection.

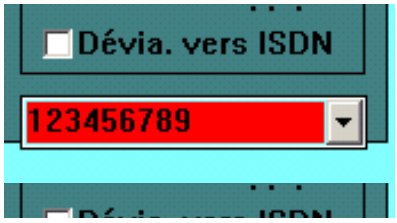
Work from configuration through RS-232 can be turned on to configuration through modem by marking the "modem" parameter in the GSMSET program. Another element – "ListBox" for selection of the telephone number of the gate that will be configured in a remote way will appear under the field for ISDN parameters setting.

The background information for this list is read from the file "modems.csv" in the directory of the GSMSET program. The program will list the background data in alphabetical order automatically. The file can be created either manually in any text editor, by export from any database or table program (csv format separated with commas) or by exporting an Outlook directory with the appropriate items (again, csv format separated with commas). The names of individual items or columns should be "name", "modem", "file". The "name" field is to be used to save an identifier (name of location, etc.) of the gate. The telephone number of the first module of the gate should be entered in the "modem" field. The "ref" field is intended for a program for batch (mass) remote configurations that utilizes the same background data. If such background data (file) do not exist, it is possible to write the required telephone number for connection directly in the window.

By confirming your selection from the list (double-click) or by confirmation of the written number (Enter), the system will take the telephone number selected for connection into account. The valid selection is confirmed by a change of colour of the field with the selection. To reduce the number of errors (accidental change of the number by unwanted clicking, etc.), the colour of the field is turned to white in case of repeated selection and it is necessary to confirm your selection again.

After confirmed selection of the number of the gate configured in a remote way, it is possible to work with the program in the same way as in case of local configuration. When clicking on the corresponding button, the program will always perform initialisation of the modem at first, dial the telephone number selected and establish connection with the selected gate. After connection is established, it reads or stores data. Operation is again indicated with LEDs in the corresponding pushed button. Data transfer at remote configuration is slower and for that reason, also the LEDs flash slower and configuration takes more time. After data transfer termination, the program will interrupt connection automatically and the modem will hang up. If any error occurs during communication with the modem, the program will report the error. If any error (transfer error, wrong password, etc.) occurs during connection, the program will detect the error again with the corresponding error message and will terminate connection automatically again and the modem will hang up.

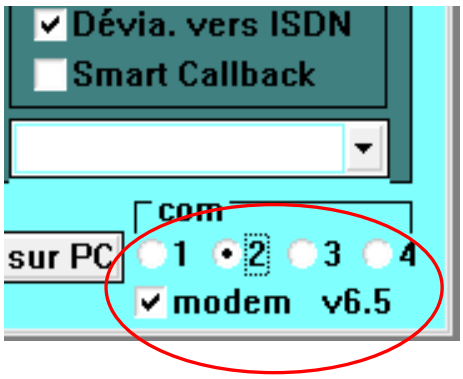
MODEM error



Insert a phone number

or

Choose a number in the list



Not forget to choose the
Right port for modem

To route the calls to ISDN
when Gateway is busy

4.9 SMS Mail

You can use the gateway in order to send and receive SMS through a PC equipped with the SMS Server software.
You can send and receive SMS through the Gateway without licence, but all the send and received mail will be limited to 10 characters with a demo text
SMS Mail acts as a standard POP Server, so you can easily implement the SMS solution into your computer network.

Attention: Not compatible With Outlook Exchange

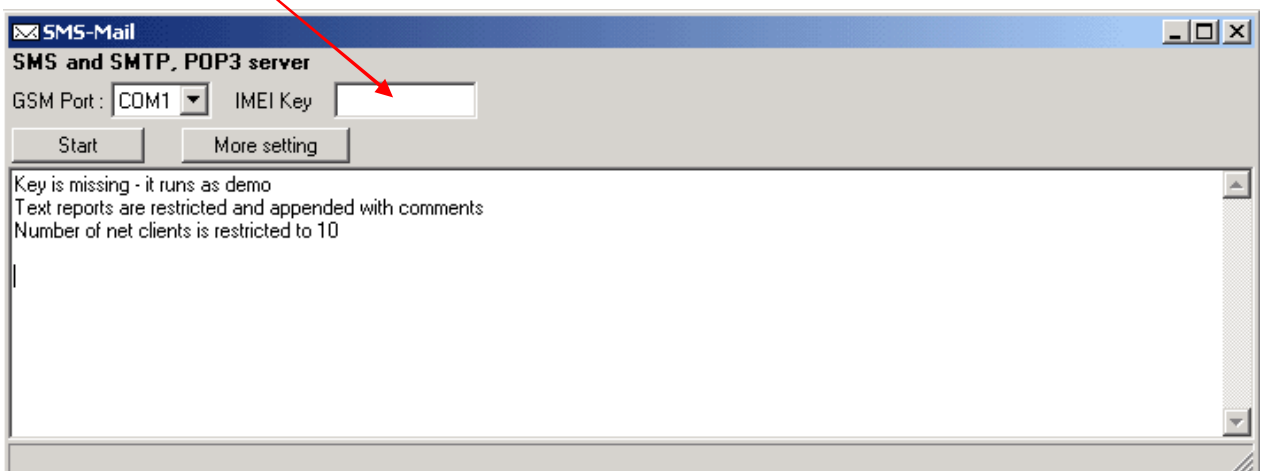
How does it work :

Like a classical POP server,you can create users(using aliases), in order to have a single Sim card but several accounts.

Installation and configuration of SMS MAIL

You can install a copy of SMS Mail on a computer equipped with Microsoft Windows. Insert the Linkgate Disc in the PC. A window will show (html page) click on « SMS Server » and save the file on your hard drive (wherever you want).
If you have purchase a licence, please insert it in the IMEI Key field

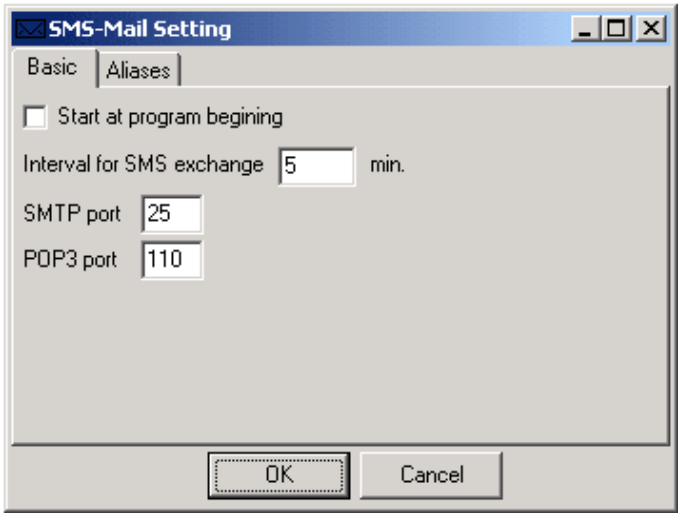
SMS licence key in the zone: **'IMEI key'**



You can only use one key per GSM module (the licence key is associated to the IMEI of the gsm module)

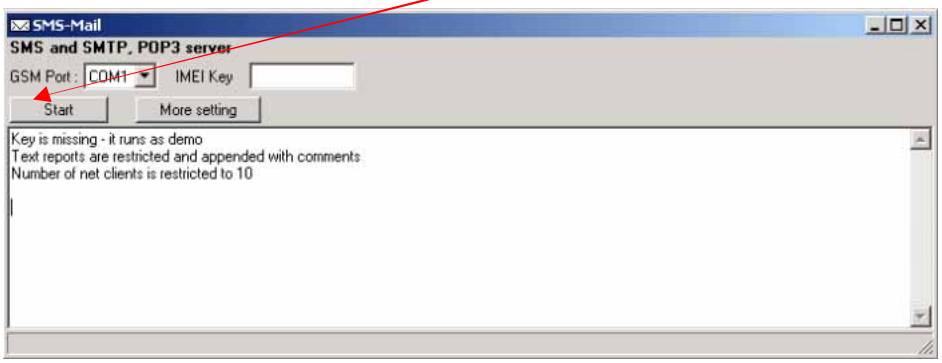
You need to reboot the software in order to fully use SMS MAIL. If you want to start SMS Mail with Windows, check Start at program beginning' in 'more settings' options.

In order to use the memory of the computer instead of the SIM card, you have to define a synchronisation period in order to send/receive the SMS. During this send/receive time the gateway changes his state into DATA mode, so you are not able to call during a synchronisation.
You can also configure the incoming and outgoing port of the SMS Mail software (default: 25 and 110).



Click on 'Start at program beginning'

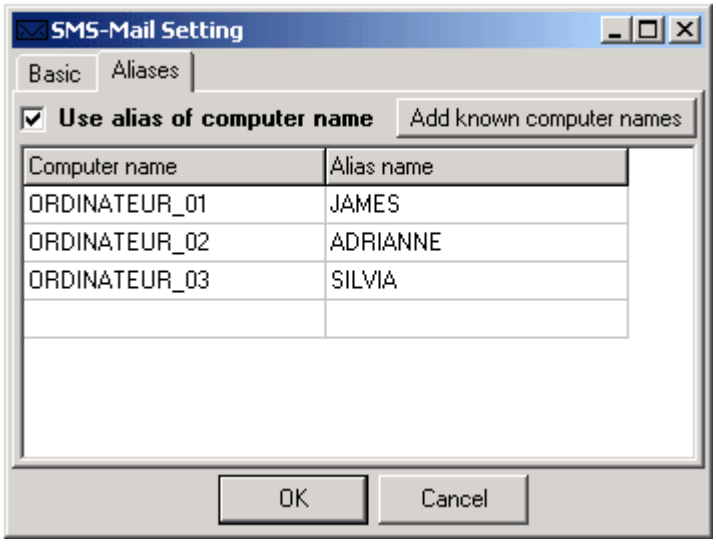
For starting the mail server click on 'start':



Setup a mail client

Here are the settings of SMS MAIL:
POP: IP or name of the computer which is connected to the Linkgate
SMTP: IP or name of the computer which is connected to the Linkgate
Please make sure you are using the good communication ports.

Send and receive SMS :



If you want to correctly distribute the received SMS, you must respect the following rules:
-the SMS should contain the name of the computer
OR
-the alias of the computer name

In a received message the sender should write the name of the computer as follow :
#name_of_the_computer_or_alias# body of the SMS
You can send a SMS to multiple computers by separating the names with a coma:
#name01,name02,name03…# body of the SMS

If you want to send a SMS from your pop client, please use the following syntax:
SMS@XXXXXXXXXXX.sms , the X's represents the phone number of the receiver
After a mail synchronisation the SMS MAIL server will extract the phone from the address SMS@XXXXXXXXXXX.sms and will send it through the GSM network.

5 Appendix

5.1 Range of values

Function	N° of digits	Range
PIN	0000 - 9999	
Pulse each	1 - 2	0 - 99
Volume GSM	1	1 - 7
Volume ISDN	1	1-4
Permitted directions	0 - 4	0 - 9999
Password	4	0000 - 9999
DISA	1	0 - 4
Wait	1	0 - 9
MSN (DDI)	1 - 4	0 - 9999
Max digits ISDN	1 - 2	1 - 99
Wait for	1 - 2	1 - 99
Erase CLIP	1	0 - 9
Connexion via Clip	1 - 10	0 - 9999999999
Internal communication	1 - 4	0 - 9999

5.2 Editing the selected values of individual parameters:

With respect to the effort to ensure compatibility with the system base as large as possible (Windows 3.1 up to XP), the way of editing is somehow archaic and unusual for the present age.

5.3 Editing in parameters fields

The values can be written in a standard way upon location of the cursor in the field. **Deleting values can be performed only from the back using the Backspace key**. The complete value can be rewritten in a usual way, i.e. by marking the complete value and, consequently, by loading a new data item.

.

5.4 Editing in Tables

A table cell is always edited as a unit – i.e. individual digits may not be rewritten. If you click with the mouse (or cross with the cursor over) on the selected cell and start writing, the complete value in the cell will be rewritten. The complete value in a cell can be again deleted only using the Backspace key. The value in a cell can be saved either using the Enter key or only after crossing over with the cursor or mouse clicking on another cell. This rule is applied also to deleting.

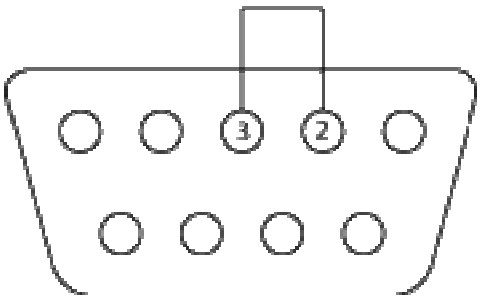
5.5 RS 232 interconnection cable

A standard series cable with 9-pin connector on both ends DTE-DCE (modem 9-9) is used to interconnect the gate with your PC. It is also marketed under the designation "mouse extension cable". **The cable "zero modem" or "lapling" has RX and TX crossed and cannot be used directly!** If you wish to use this cable with an adapter, the adapter has to contain crossing again! If this is not the case, the link DTE-DTE (for interconnection of 2 PCs) will be formed that will not operate. Non-operating cable will by indicated by the message "Invalid password" when attempting to communicate.

5.6 Hardware Reset

In case of lost password, or inactive modifications in configuration use hard reset.

1 – Unplug the power supply
2 – Short-circuit pins 2 and 3 of DB 9 located under the GATEWAY.
3 – Plug the power supply
4 – Wait 5 seconds
5 – Keep off the metalic piece from the DB 9
6 – Reboot the Gateway



www.linkcom.net
info@linkcom.net

Hot Line: 08 26 46 79 00 (France only)