GSMIO

- ACCESS -

INSTRUCTION MANUAL

July2006a

Index

GSMio

Introduction:
Welcome to the GSMio Access, *a Sabercom product*. Access was designed specifically for town-house complex developments. As these schemes try to save costs, fewer of them are putting in intercom systems. A result of this is many residents and their visitors are often left stranded outside or trapped inside, due to lost or faulty remotes. Ultimately the gate gets left open or the beams get blocked, resulting in a serious security risk.

Product description:
The GSMio Access is a self-contained GSM gate management system, designed to enable users to open the driveway gate at homes or at a security complex. The unit is a complete product, which includes the power supply circuit, a processor and non-volatile memory, a cell-phone engine, output relays and status indication LEDs. The product needs no external components to operate and requires only a DC supply voltage of between 10V and 20V.
The GSMio Access can store upto 500 numbers of residents and 100 visitor numbers. The residents' numbers can be entered via the software or via SMS. Visitor numbers can be added by residents only and after being used for entry and exit the number is deleted.

Disclaimer and warranty
Disclaimer: This product is designed to operate as a communication device, which will perform certain functions if triggered via SMS. It is also able to send an SMS as a result of certain actions. The product has been manufactured to the best standards and strictly in line with the design specifications, however the manufacturer, supplier and all other parties cannot guarantee it will function in one hundred percent of applications and circumstances. The system is reliant on third party service providers and Sabercom and its partners have no control over these third parties. For this reason we recommend that you do not use this device for critical services. Although we, and many customers have found it to be highly successful, please be aware that no party can guarantee its effectiveness. Under no circumstances should the GSMio be used in a medical application, life support or related service.
Warranty: The product is guaranteed against defective workmanship for a period of twelve months from date of manufacture. As the manufacturer has no control over the use of the product we cannot guarantee damage caused by poor installation, errors, acts of god, environmental influences and general misuse or abuse. If the instructions are followed the GSMio should give you many years of trouble free use.

How to use the GSMio Access

As you approach your complex gate simply dial the number (Displayed on the gate)
Once the gate opens, hang up. (No call charge will result)

If you are a resident and you are expecting a visitor later, simply SMS his/her number to the Gate.
When your visitor arrives, he/she can call the gate and the gate will open for him.
When he/she leaves the same procedure will apply. After leaving the visitors number is automatically deleted by the system.

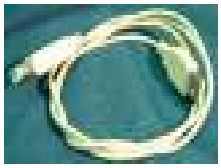
If the visitor has not left by 3am the number will be deleted as well, in case the visitor slipped in or out with another car.

What you will need.
In order to operate, program and use the GSMio the following is needed:

- A 12V DC (typical) power supply
- A computer which operates on the Windows platform and has a USB port
- A screwdriver (3mm flat)

If you feel that any of the steps are outside of your ability please consult a qualified alarm or gate installation technician. You can contact Sabercom for advice or most technicians will be able to help.

Included in the package:

GSMio (Cased option)	Connectors	CD (Software & Manual)	USB Cable
			

Check your pack contains the parts you expected. The labels and pictures above will help you to identify the various items.

Getting Started

Software

1. Insert the CD into the ROM drive of your PC. The software is designed to run on the Windows® XP platform.
2. Follow the onscreen instructions to install the software.

Connection (USB)

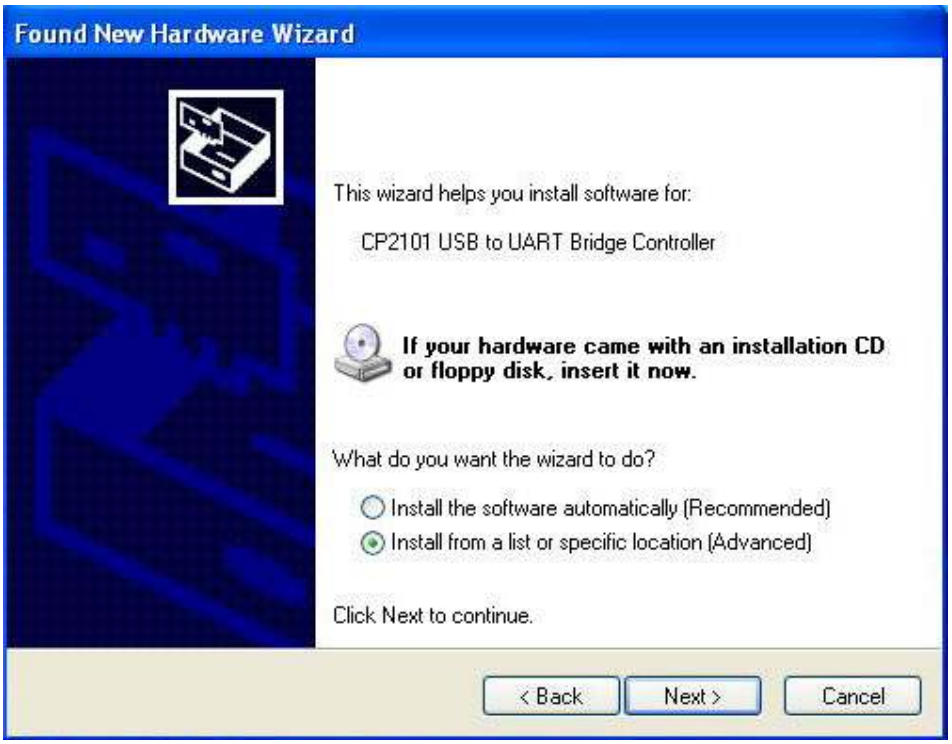
1. Connect the USB cable between your GSMio unit and one of the USB ports on your PC.
2. Only some PCs will automatically install the USB drivers. If yours does not, refer to troubleshooting to manually install the USB drivers.

Install USB drivers.
If your USB driver won't install automatically please do the following:
After installing the GSMio software, connect the GSMio to the PC via the USB port.
Once the PC has detected the new hardware the following screen should appear:

pto…..

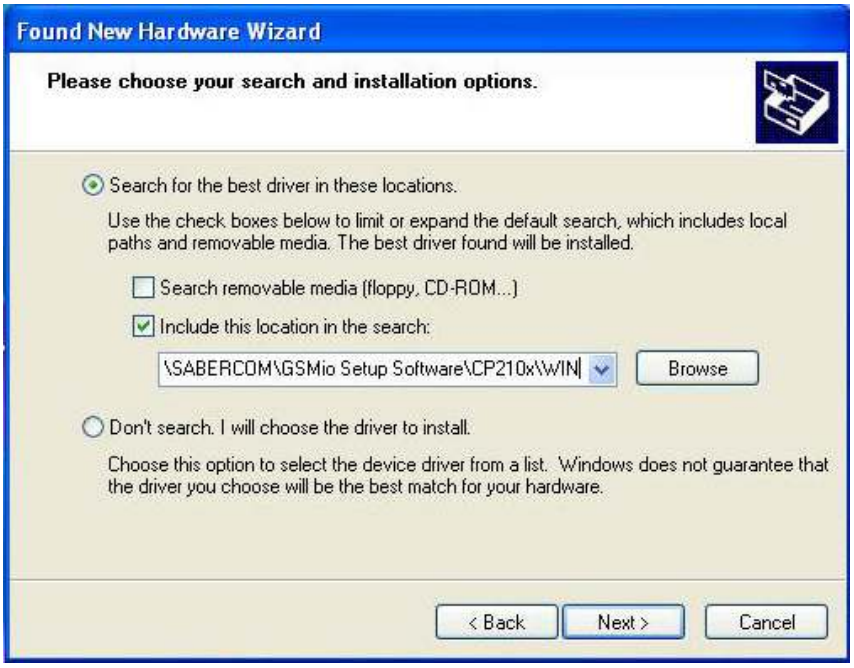
Select **No, not this time** then click **Next**

Then this screen will appear:



You need to specify location so click **Install from a list or specific location** then click next.

Then this screen will appear:



Browse for the following file:

C:\Program files\SABERCOM\GsmioSetupSoftware\CP210x\WIN

Then click **next**.

The same process has to be repeated for the Virtual Port, so repeat the steps above. Finally you will see the following screen:

Your drivers are now installed.

Unplug and reconnect the GSMio. Your PC should recognise the GSMio and not ask for software drivers for the USB. (This means that it is correctly installed.)

Hardware

1. Ensure the SIM PIN (Personal Identification Number) on your SIM card is either disabled or set to 9176.
2. Insert the SIM card in slot 1 on the underside of the GSMio unit.
3. Connect the GSMio to a 12V DC power source. Pin 1 + and 2 - of the connector block. [Actual voltage range is 10V to 20V DC] (See "*where to get 12V from*" if you do not have a 12V DC supply handy.)
4. After a few moments the Status LED should flash. If not, disconnect power, check the steps above and reconnect power. ***NB! If this fails again, please remove the SIM card and install it in a standard cellphone. Then attempt to make a call and send an SMS from your standard cellphone.***

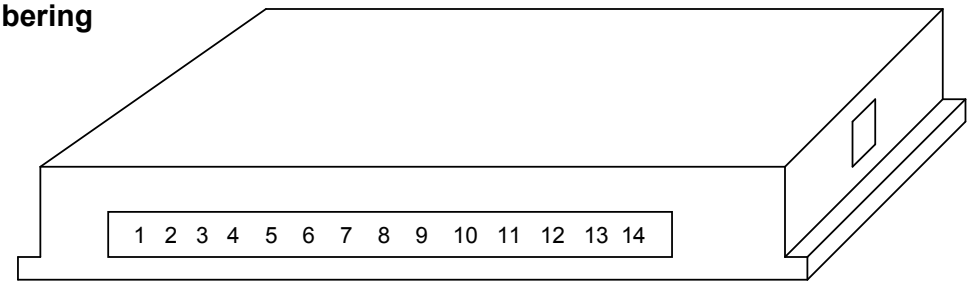
Programming

1. Start the GSMio software by double clicking the GSMio icon on  your desktop.
2. Once the GSMio software screen opens click on the "Check Comms" icon, to check the connection is active. ("GSMio detected" will be shown on the bottom left of the screen)
3. Enter the relevant fields into the Programming fields on the GSMio software screens.
4. Save the programming information to the PC by clicking on the "Save to file." Icon. Give the saved information a name and **add the suffix .cf**
5. Send the information to the GSMio by clicking the "Send to GSMio" icon. A status indicator will show the progress and result of the upload.
6. Disconnect the GSMio from the PC and 12V supply. *Please note, the GSMio must be turned off and back on for the new settings to take effect.*
7. Connect its input and outputs as per your application. Finally reconnect 12V power.
8. After the GSMio has logged onto the network it will send the Master Number a message asking for the TIME. Please reply as follows: pass@time 12:45 (Where pass is the password you programmed into the GSMio, @ is the symbol for programming, time followed by a space and then the time in 24 hour format. So 9.15pm will be 21:15 Only the **:** symbol can be used, no additional spaces etc)

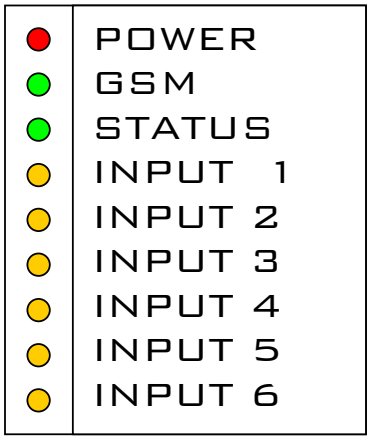
Connection diagram and pin out.

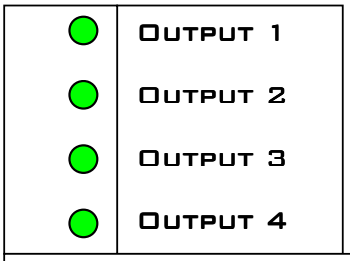
Pin No	Name	Description	Connection	Block
1	Pos	Positive DC supply	12V Positive (side of battery)	2 way
2	Neg	Negative DC supply	0V negative (side of battery)	2 way
3	In 1	Input 1	Input 1 trigger	6 way
4	In 2	Input 2	Input 2 trigger	6 way
5	In 3	Input 3	Input 3 trigger	6 way
6	In 4	Input 4	Input 4 trigger	6 way
7	In 5	Input 5	Input 5 trigger	6 way
8	In 6	Input 6	Input 6 trigger	6 way
9	Out 1	Output 1	Output 1 to common 1&2 (when on)	6 way
10	Out 2	Output 2	Output 2 to common 1&2 (when on)	6 way
11	Com1&2	Common for 1& 2	To complete circuit	6 way
12	Com3&4	Common for 3 & 4	To complete circuit	6 way
13	Out 3	Output 3	Output 3 to common 3&4 (when on)	6 way
14	Out 4	Output 4	Output 4 to common 3&4 (when on)	6 way

Pin numbering



Top cover - indication LEDs



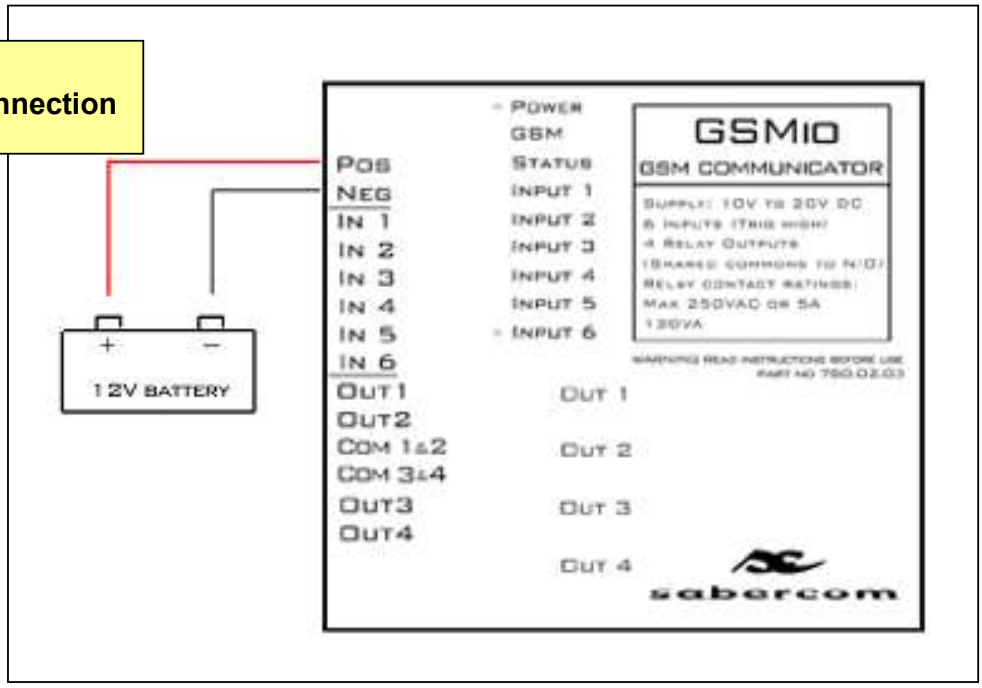


LEDs (light emitting diodes)
Power – Glows to indicate power is connected
GSM – Flashes once per second when logged onto a network
Status – Flickers when the unit is sending or receiving
Input 1 to 6 – Glows when the input is on (High)
Output 1 to 4 – Glows when the output relay is ON

Power connection:

In the first example the diagram for connecting the GSMio to a 12V battery to supply power is shown. (This is suitable as a temporary power source for programming or as a back up.)
See diagram on next page

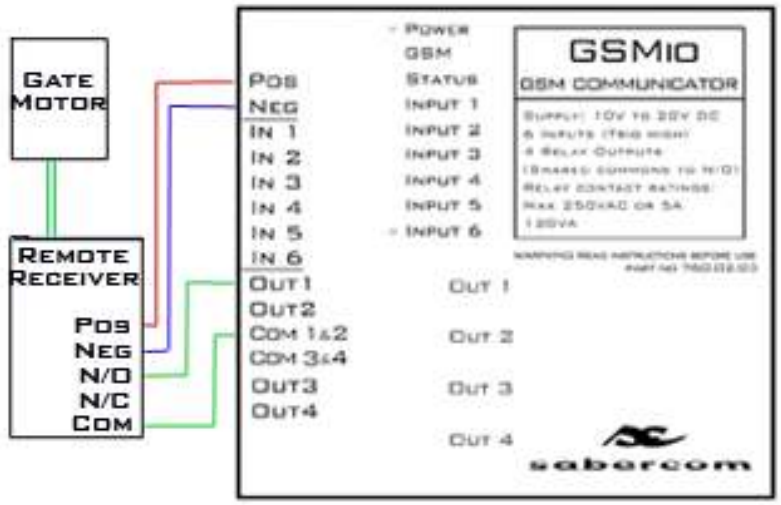
Eg 1
Battery connection



Gate trigger:

As the GSMio Access is designed to trigger their gate motor, the following diagram will assist. The gate triggers are usually ***normally open*** which means there is no contact between the two wires until the button on the remote is pressed. If your gate works with a remote control, the remote control receiver will be near the gate motor. This receiver will have connector block on it with the trigger wires connected. The trigger wires will go to the points called **COM** and **N/O.** If you join these two points to the GSMio the output can then trigger the gate motor.
Most gates require only a pulse of about 1 second to trigger the motor, so you will have to setup your GSMio using the software to pulse for only 1 second. There are a number of options in this regard, which are covered further in the manual or the tutorial, but the connection is indicated.

Eg 2
Gate trigger



Once connected and correctly setup the GSMio Access can be used to open or close your gate from anywhere. This can be done by dialling the gate number or by sending it an SMS; depending on how you have setup your software.

NB The remote system can operate in parallel to the GSMio Access.(Both can be used)

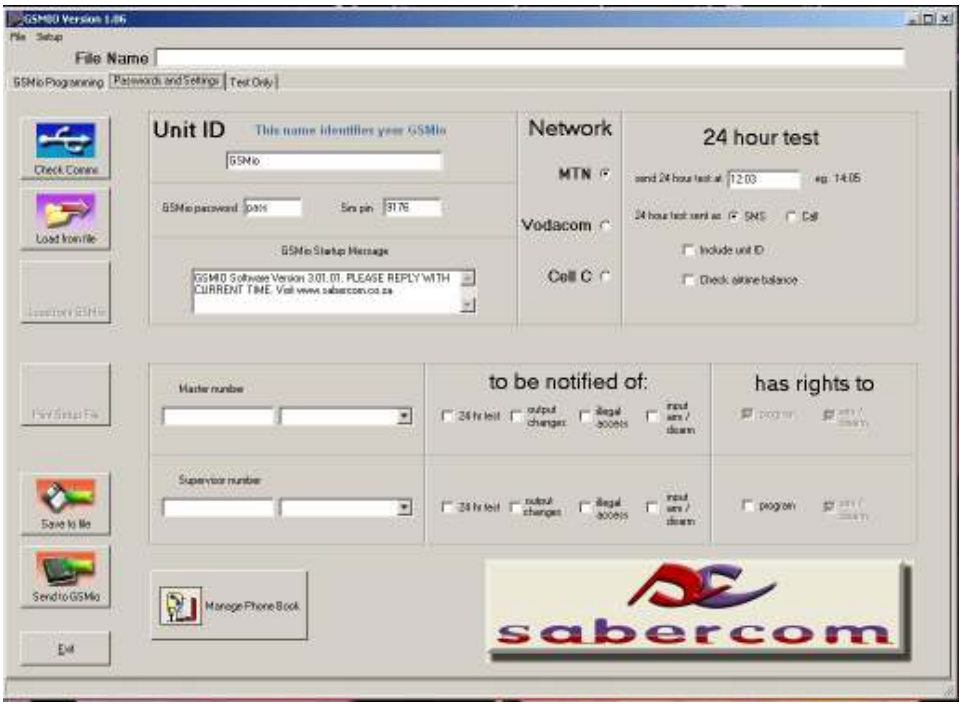
Detailed Operating Instructions

GSMio Software

Start the GSMio software by double clicking on the desktop icon or by choosing START, then GSMio and then GSMio XX.X

Passwords and Settings

The software should open on the GSMio Passwords and settings screen. If it does not, click the tab on the top left of the screen and the following should be displayed.



The GSMio Settings screen is used to enter details such as the Unit ID, the master and supervisor numbers and parameters for the 24 hour test and airtime balance checks.

Unit ID
This field is used to identify your GSMio. Some users include the name of the complex in this field.

Change Master Password
The factory setting is **pass** If you type in a new password (MAX 4 characters) the new password is visible to the person doing the programming. This is the password which will be sent to the GSMio.

GSMio StartUp Message
This area can be used to customise the start-up message. It is designed for resellers or system integrators, to allow them to put in their own details.

Change SIM PIN
PIN length must be 4 digits.
Changing the SIM PIN procedure is exactly the same as the change master password procedure above. Please note that changing this PIN number will not affect the PIN number on the SIM card. This only changes the PIN number that the GSMio auto applies on start-up to activate the SIM card. If you have just received a new SIM card for your GSMio, the starter pack will include a PIN code. That is the PIN code you should enter here.
If you would like to change the code of the SIM card, insert the SIM card in a normal cellphone and use the phone menu to change the pin code. Then set the SIM PIN in this area of the GSMio software, to match the card.

Network
The GSMio has various functions that are network dependant. In order to setup the GSMio, so that it can perform all its tasks, it is necessary to select the Network being used. Click on the icon to select.

24 Hour Test
This message gives the user confirmation daily that the unit is still working and is still on the network. The report will be sent everyday at approximately the same time. If the 24 hour test is being sent at an unacceptable time of the day, the time can be reset by sending **pass@24hr** followed by a space and the new time to the GSMio. The time must be in the 24 hour format spaced by a **:** An example would be **pass@24hr 18:20**

SMS or Call
If call is selected for the first number, the GSMio will call instead of sending an SMS. This call will come at the time of the 24-hour test as mentioned above. The phone will ring 2 to 3 times and the call will be automatically terminated. This will save on the cost of the daily SMS. Please note that this option will be greyed out if “Call” has been selected as one of the Input options. (High Message or Low Message on the “GSMio Set-up” screen)

Include Unit ID
Including the unit ID will help you to identify which unit is sending the test. Useful if you are monitoring a number of units.

Check airtime balance
If a prepaid card is being used then the GSMio will automatically check the prepaid airtime balance if this box is selected. This means the GSMio will request the balance from the network and attach the value to the 24hr test SMS. Please note that it is vital to select the correct Network to enable this feature.

View phone book
The phone book is a simple phone book entry system that links names to numbers. Numbers are added in the box and along side the name is added. If a number is typed in the name linked to that number would appear next to it.

\+ Clicking the plus sign creates a new line to enter names and numbers into. Once the new number and name is entered click the tick to accept.

\- If you select a line is may be deleted by clicking the minus button. A confirmation screen will appear.

Edit To edit an entry click on a selected line a second time. After editing click the tick. Please note, it is a good idea to take care of the phone book and to double check before clicking the tick.

Features shared between screens

Icons

The **Check Comms** icon can be clicked once the USB cable is connected to determine if the PC and the GSMio are connected and able to effectively communicate. This is important to ensure the programming instructions reach the GSMio.

Clicking this icon will open a windows box to select the **file** you wish to **load from**, to the programming window. You can save a set of GSMio settings on your PC and recall those settings at any time. This means a number of GSMio units can be programmed with the same parameters, or a replaced model can be programmed the same as a previous one in a matter of seconds. The associated File name will appear at the top of the screen in the box.

This icon will **load** all the programming fields automatically **from** the connected **GSMio** to the programming screen. A warning screen will ask you to confirm before loading the fields. (This feature may not apply to your particular model)

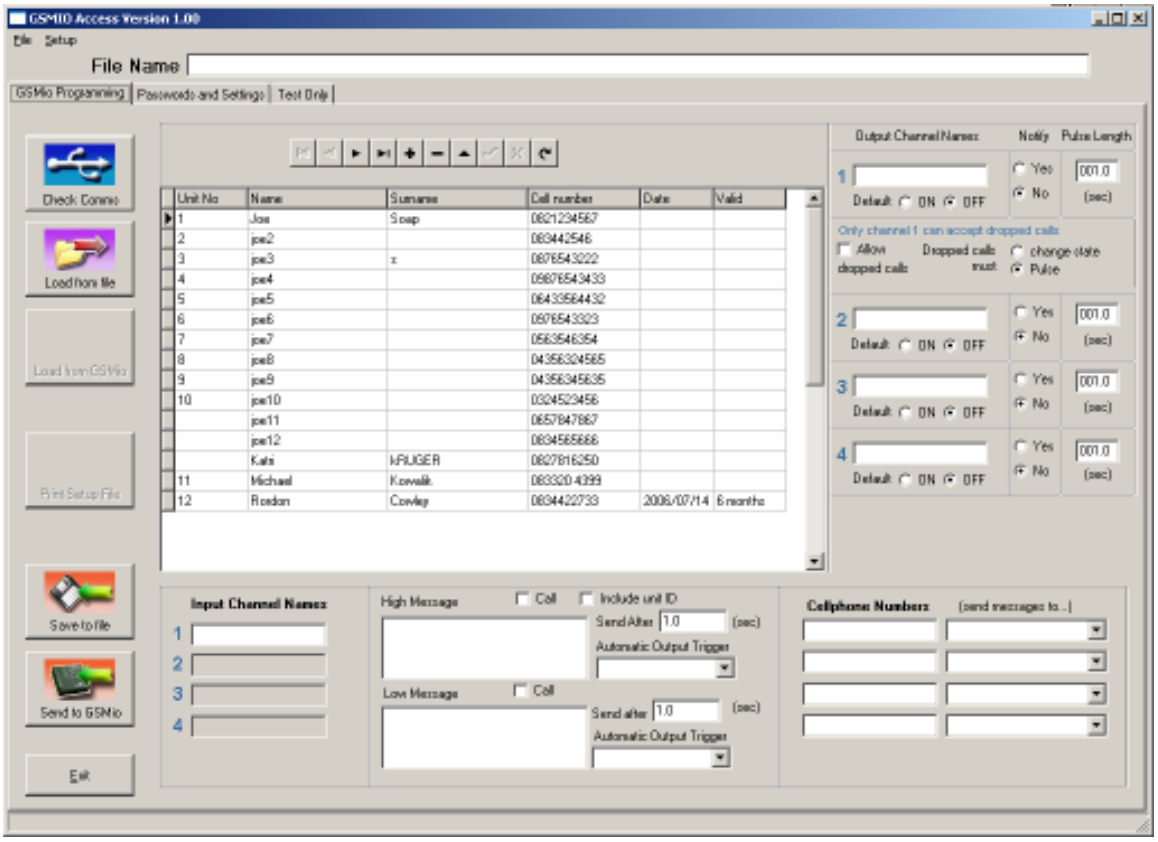
Clicking the **Print** icon will print a one-page **setup file** document that includes the Input and Output channel names, numbers that can control the channels as well as the send to numbers. The messages associated with the channels and the default relay status will also be included to aid with final installation of the GSMio. (This feature may not apply to your particular model)

The **save to file** icon opens a dialog box enabling you to save a set of settings for future retrieval. Please note: If you save a file, add the **.cf** after the file name. Failure to do this will result in the file being saved incorrectly and it will be impossible to retrieve the settings.

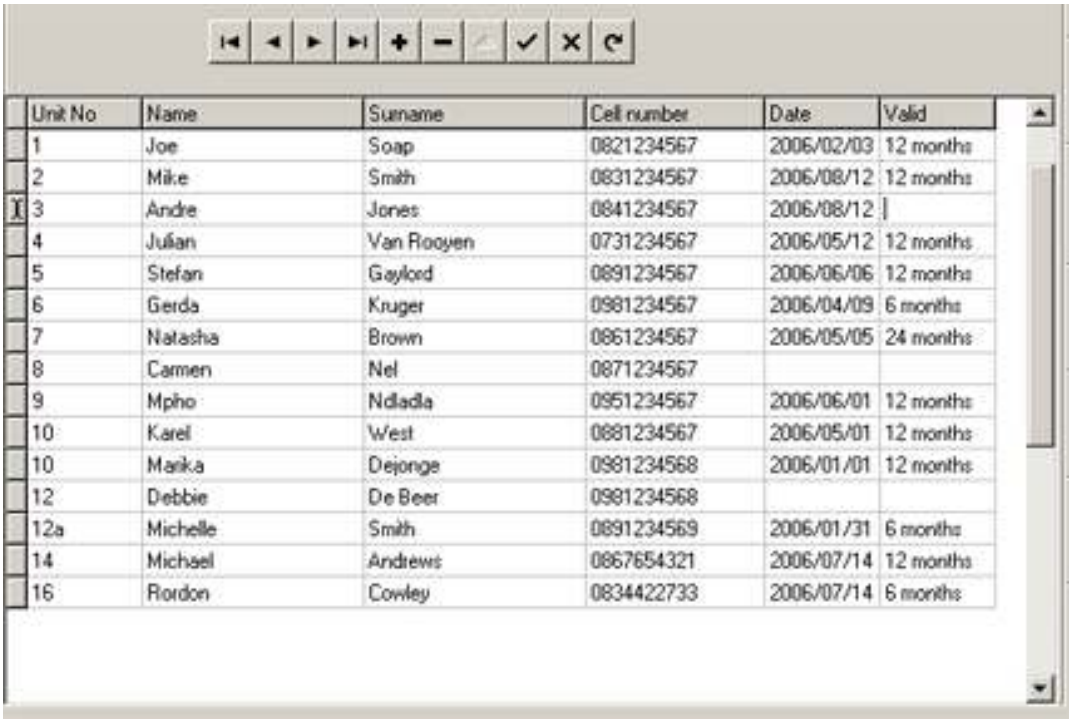
This icon is used to **send** the programmed fields **to** the **GSMio**. A confirmation screen will appear before the unit is reprogrammed. Once accepted all previous settings on the GSMio will be deleted.

Select the GSMio Programming tab

The screen should look like this.



Input Numbers into the spreadsheet



Unit No	Name	Surname	Cell number	Date	Valid
1	Joe	Soap	0821234567	2006/02/03	12 months
2	Mike	Smith	0831234567	2006/08/12	12 months
3	Andre	Jones	0841234567	2006/08/12	
4	Julian	Van Rooyen	0731234567	2006/05/12	12 months
5	Stefan	Gaylord	0891234567	2006/06/06	12 months
6	Gerda	Kruger	0981234567	2006/04/09	6 months
7	Natasha	Brown	0861234567	2006/05/05	24 months
8	Carmen	Nel	0871234567		
9	Mpho	Ndladla	0951234567	2006/06/01	12 months
10	Karel	West	0881234567	2006/05/01	12 months
10	Marika	Dejonge	0981234568	2006/01/01	12 months
12	Debbie	De Beer	0981234568		
12a	Michelle	Smith	0891234569	2006/01/31	6 months
14	Michael	Andrews	0867654321	2006/07/14	12 months
16	Riordon	Cowley	0834422733	2006/07/14	6 months

Add the numbers of all the residents into the spreadsheet using the symbols at the top.
The + to add a line.
The – to delete the entry
Navigation buttons are self explanatory.

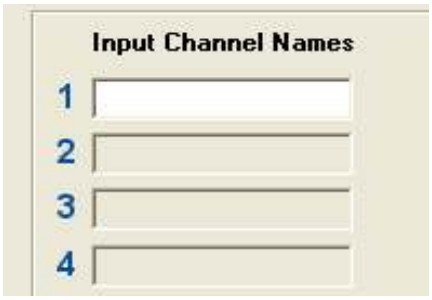
All fields except the number are optional and are only there for your management purposes.

Please save once you have completed this section as it might take you some time to type in.

Input Channel Settings:

Input channel fields.
The input channel programming is divided into the following fields.

- Input channel names
- SMS messages
- Cell phone numbers

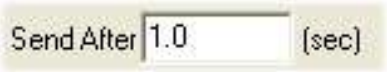


Input channel names
There are four input channels.
To select a channel for programming click on the channel name box and it will become white. Once white clicking on it again will allow you to change the channel name. This cannel name has nothing to do with the function of the GSMio but inserting the channel names is useful to assist you with programming and set-up of the GSMio. E.g. If Channel 1 is for your alarm, type “Alarm” in the box.
Do the same for the rest of the channels.

SMS Messages
There are two message fields for each input channel. If channel 1 is selected then the displayed messages will apply to that channel.

High Message
The "High" message will be sent when the input goes high. I.e. 12V+ is supplied to that input. (See connection diagram)

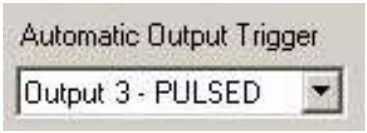
Low Message
The "Low" message will be sent if the 12V+ signal is removed.
E.g. For channel 1 "Alarm" the High message could read "Alarm on" and the Low message could read, "Alarm off."



Send After
The "Send after" field is the delay (seconds) before the SMS is sent. In other words once the Alarm is turned on and channel 1 input goes high a time of xxx sec must elapse without a change of condition, before the GSMio will send the SMS.
This has a number of uses for example when a float switch is used to trigger conditions. Typically a float switch on a reservoir bounces slightly. This bounce would cause the switch to turn on and off multiple times and if connected to an input this would send many messages. In a condition where the input is being used to warn of an empty reservoir the message may send saying "Reservoir 3 low" but a moment later the switch could bounce up above the low level again. Then a second later the switch may again detect a low level and another message would be sent. This could become annoying and expensive so a suitable delay could be programmed.
For a float switch a time of 60.0s could be programmed. (60 seconds)

Call
The call box can be checked if you would prefer the GSMio to call the number instead of sending an SMS. If the box is selected for a channel High the GSMio will phone the number and allow the phone to ring three times. It will then drop the call. This only applies to one channel and to one number only. You will notice that once the box is checked all other Call boxes become grey making them impossible to select. (The reason only one number can be called is firstly calls take a long time compared to SMS and cannot be queued like SMS. The person receiving the call will only be able to identify the GSMio by recognising the number and will have no channel information.)

Include unit ID
By checking the Include unit ID box the unit's ID will be sent tagged on the back of the message.
E.g. If the unit ID was programmed as "at the office" then when channel 1 goes high the sent message would look like this. "Alarm on at the office"



Automatic Output Trigger
The Auto Trigger feature will cause an output to automatically respond to a change of state of an input. This means that if an input goes HIGH an output channel could also switch ON or OFF automatically. An example of a use for this could be if GSMio was used to monitor a water tank. If the tank runs low, a message could be sent to the owner telling him that the water level is low. Then the Automatic Trigger would turn on the Output where the pump is connected, thus refilling the tank.
There are 3 options for each Automatic output trigger: ON, OFF or PULSE. The logic remains up to the programmer but the combinations of switching are numerous.

Cellphone Numbers
This field is used to input the numbers to where the SMS messages should be sent. The left box is used for the number, the right displays the name associated with that number. By clicking on the scroll down box a scroll down will appear making the selection of names possible.

(To enter new names use the Phone book feature on the Passwords and Settings page.)
The check boxes must be selected if you want to include the number to receive the message. Thanks to the flexibility of the system up to eight numbers can be notified per input channel.

TIP. It is optional to use the international dialling format (E.g. +27 for South Africa) The system is also intelligent enough to ignore spaces so you can enter phone numbers in the usual spaced format if you prefer. (E.g. 083 123 4567)

Output Channel Settings

The Output channels are relay outputs which can be switched on and off via SMS messages from your cell phone which you send to the GSMio. The fields have to be programmed in order for the GSMio to know what to do with the messages you send it.

Standard format
The standard format for the Output Channel messages is as follows: **pass!11**

pass is the default password can be any four letters or digits
The **!** tells the system that it is an instruction.
1 determines the cannel (Choose 1 to 4)
1 instructs that channel to turn on (0 means off and 2 means pulse)

More instructions can be obtained from the “Full list of commands”

Cellphone numbers
Enter the phone numbers that may send instructions to the GSMio.

Output Channel names
The names are useful for identifying the channels and are also used for the verify messages.

Default
Select On or Off to select the state of the Output relay on initial power up. (When the GSMio is first switched on the relays will either be on or off as determined by the default setting.) E.g. If Output one is used to control the geyser the output default should be ON. (Note ratings of the relays with respect to voltage and current. The relays on the unit are not suitable for switching a geyser on and off directly, but could be used to control a high power relay or contactor)

Notify
The notify box is used to select if you would like the GSMio to notify you once a request is received. E.g. if Output Channel 3 is named "Lights" and you send it an instruction to turn the lights on (pass!31) then once received the GSMio will send the following message: "Output Lights On"

Pulse length
This field is used to set how long the relay will pulse for. The pulse is a change of state and is triggered by sending a 2 to the GSMio. If the Output relay is Off then it will be switched On for the length of time determined by the Pulse length, before returning to the Off state. The time can be anything from 0.1 seconds to 999.9 seconds*. (Accuracy not precise)*

Allow dropped call
Only channel 1 can allow the dropped call feature. Once the box is checked Channel 1 can then be controlled by a dropped (missed) call. If the GSMio receives a call from an authorised number and the call is dropped before three rings the Output will be triggered.

Change state
If the Change state box is checked the Channel 1 relay will change state. If it is On and a dropped call is received it will turn Off.

Pulse
If this box is checked then a dropped call will cause the Channel 1 relay to be pulsed. This pulse length and state will be determined by the Default and Length parameters for Channel 1.

Where to get 12V?

Although the GSMio operates from anything between 8V DC and 24V DC, this manual often suggests 12V. The reason for this that 12V DC is readily available and most homes will have 12V available in one of the following places.

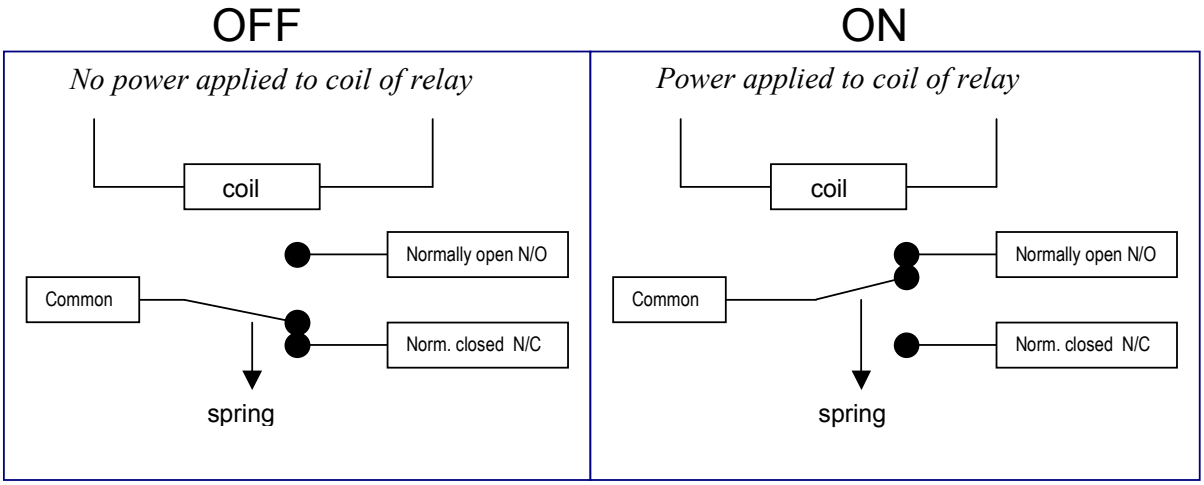
Car battery
Almost all cars operate on 12V. A cable can be made up from the cigarette lighter socket to power the GSMio.
Home alarm
All home alarm systems operate on a 12V DC battery as back-up and will thus also have a 12V charging circuit. The GSMio has been designed to work with alarm systems so the power from an alarm control panel is ideal.
Separate plug in power supply
Many of the small plug in wall transformers (Chargers) can supply 12V DC. Even if it is not a 12V supply it will probably work if is 9V or above and can deliver a current of 300mA or more. Provided the supply is DC.

What is a relay

A relay is an electronic switch. In many cases it can replace a normal switch, such as a light switch in your home. Relays usually consist of a plastic body with a number of electrical contacts beneath it. These contacts are divided into two sections; 1 the actuating coil, and 2 the switch contacts.

How a relay works

When an electrical current passes through the coil the magnetism produced causes the relay to switch over the electronic switch. Depending on the type of relay you have it may switch the switch from ON to OFF or OFF to ON. If it is a change over relay it may do both and could be multiples, all powered off one coil. When the electrical current is removed an internal spring reverses the action performed by the coil.



Use

A relay is often used to switch higher electrical power, than the electronic circuit used to drive the relay, can handle. I.e. If a relay can handle 60W of power it is typically only using 1,5W to switch.

Relays can be used to switch a higher voltage. In the case of GSMio 12V DC is used to switch the relays, which can in turn be used to switch a 220V AC light on or off. (Please use caution when switching mains voltages. Consult a qualified electrician.)

Relays can also be used to isolate two or more voltages or currents. The GSMio has a shared common for all four relays. If you wish to switch a mixture of DC and mains (AC) circuits, you will have to isolate the supplies using external relays. These can be obtained from most electrical shops.

SMS programming

Via the master and supervisor cellphone number one can add and delete residents.

To **Add** a resident use the format **pass@rn** followed by the residents number.
Eg **pass@rn0834422733** where pass is the password and rn stands for resident rumber

To **Remove** a residents number use the format **pass!del** followed by the number you wish to delete.
Eg **pass!del0834422733**

The simple rule to remember is, all messages, requests and commands must be preceded with the password and the type of message.

? = query
@ = program
! = instruction

Technical Specifications

GSMio	
Supply V min	9V
Supply V max	18V
Current typ	50mA
Current max av	320mA
Resident numbers	500
Visitors	100
Input trigger	
Input 1 to 4 High detect	2,8V DC
Input 1 to 4 Low detect	2,0V DC
Output relay	
Max current	5A
Relay Vmax AC	250
Relay Vmax DC	220
Relay power max	60 W
UL/CSA rating 30Vdc / 1A	-100Vdc / 0.3A
Dimensions	
PCB (approx)	105 x 95 x 20
Box (Including flange)	120 x 107 x 30
Connector	
2 part terminal	14 way
Pitch	5.00mm
USB	B-Type

Full list of commands

the formats

pass	**four character password**
!	**command**
?	**query**
@	**program info**

commands

password	to do	ch	action	result
pass	!	1	0	turn output channel OFF
pass	!	1	1	turn output channel ON
pass	!	1	2	pulse output channel ON for xx seconds

password	to do	command	ch	result
pass	**!**	**arm all**		all input channels will be armed
pass	**!**	**disarm all**		all input channels will be dis-armed
pass	**!**	**arm**	**1**	input channel 1 will be armed
pass	**!**	**disarm**	**1**	input channel 1 will be dis-armed
pass	**!**	**reset**		Resets the gsmio

queries

password	to do	query		result
pass	?	ver		answers with software version
pass	?	signal		answers with signal strength out of 31
pass	?	armed		answers with which input channels are armed
pass	?	mat		**m**tn **a**ir **t**ime (replies with balance)
pass	?	vat		**v**odacom **a**ir **t**ime (replies with balance)
pass	?	cat		**c**ellc **a**ir **t**ime (replies with balance)
pass	?	status		replies with current input status (high or low)
pass	?	time		replies with current time
pass	?	24hr		replies with time that 24hr test will be sent
pass	?	id		replies with unit id

program

password	to do	program		result
pass	@	in1smshigh	(space)	programs the high message
pass	@	in1smslow	(space)	programs the low message
pass	@	in1num1	(space)	programs the first number that will be notified by input1
pass	@	in1num2	(space)	programs the second number that will be notified by input1
pass	@	time	(space)	programs the unit's time
pass	@	24hr	(space)	programs the unit's 24 hour test time
pass	@	id	(space)	programs the unit identity (name)

Support

For support please visit **www.sabercom.co.za**
New information is available there as well as the technical support numbers and emails.